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Telephony

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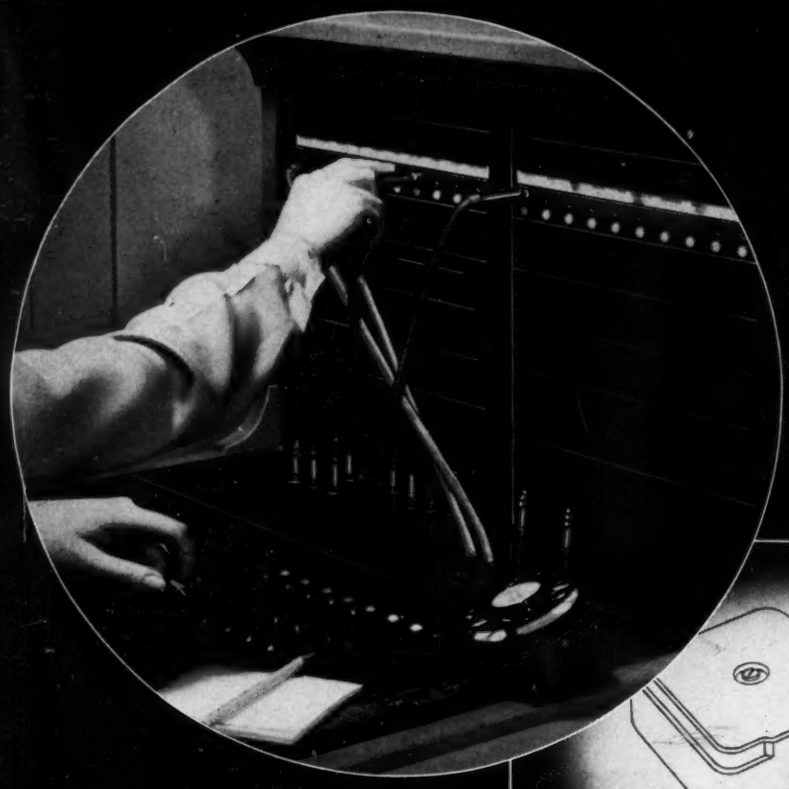
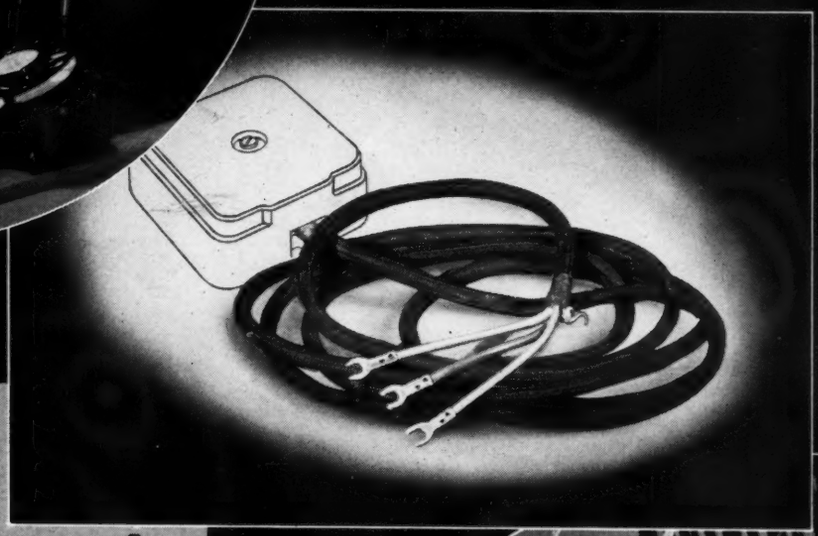
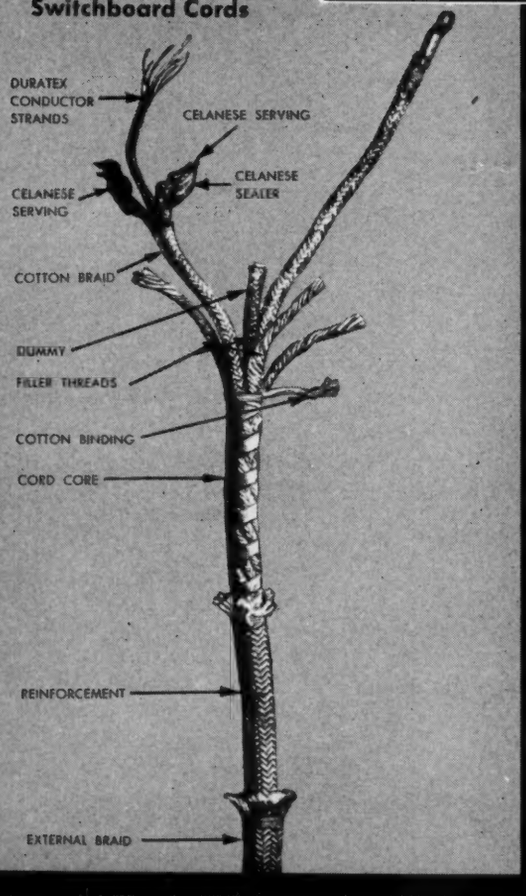
The First Cos

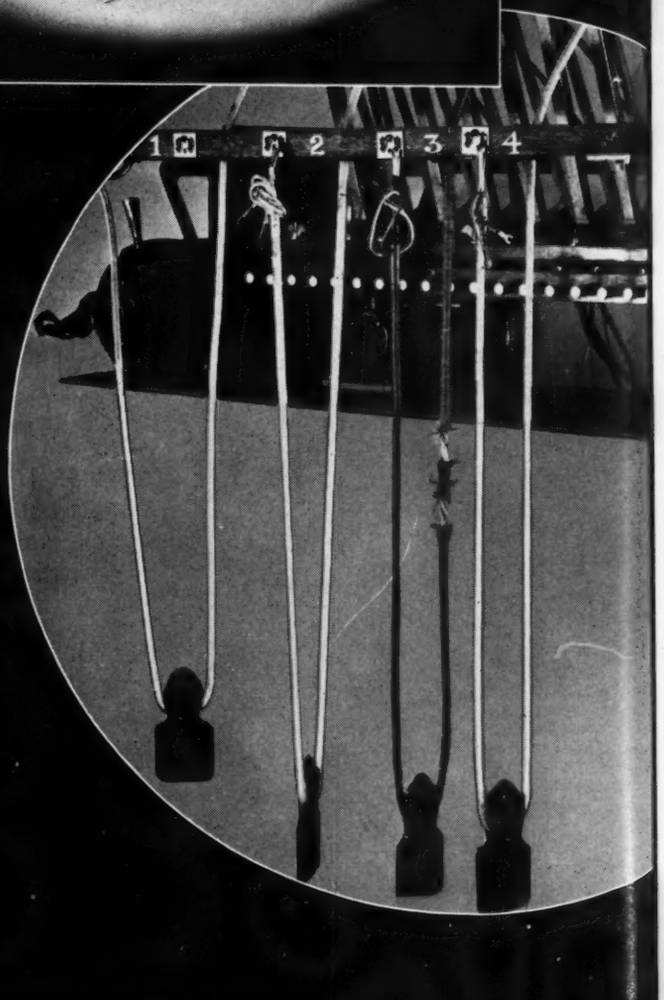
DURATEX* CORD





Construction of Stromberg-Carlson DURATEX* Switchboard Cords





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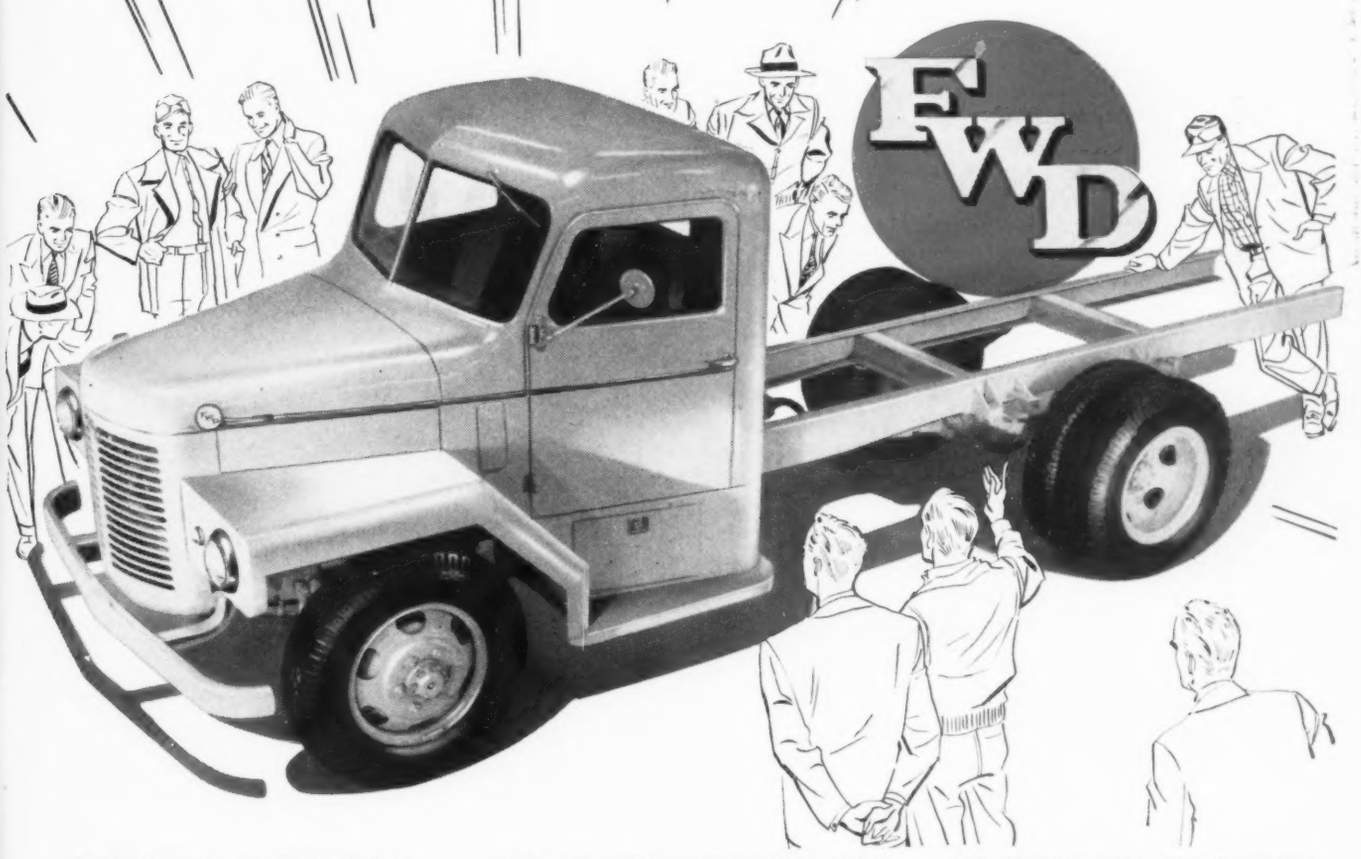

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One of the most important developments in 40 years of FWD leadership! Here is a completely new four-wheel-drive . . . designed to broaden the range of operation in the light-duty truck field. Now you can have a *true* four-wheel-drive to completely fill the needs which *conversions* and conventional trucks have sought to answer. This new model—the LD—fulfills countless requests for an FWD in that broad field.

GET ALL THE FACTS *on the LD! Ask for this folder, "The Story of the LD". See your FWD distributor or write FWD.*

THE FOUR WHEEL DRIVE AUTO CO.
Clintonville, Wisconsin
Canadian Factory: Kitchener, Ont.
World-Wide Sales and Service

Built by the Makers of America's Foremost Heavy-Duty Trucks

FLASHES AND PLUGS

ANOTHER ODE TO OPERATORS. James H. Earley, general traffic manager of the United Telephone Co. of Pennsylvania, Harrisburg, writes TELEPHONY of an impetuous furniture dealer who was inspired to write poetry about the operators at the Blue Ridge exchange. His lyrical Christmas greeting, entitled, "An Ode to the Voice With a Smile from A Satisfied Customer," follows:

How you can keep your patience
Is more than I can see.
When all day long you must contend
With grouchy birds like me.

But all this year I must admit,
You really have been fine
You haven't squawked (out loud at least)
When I've been on the line.

So Merry Christmas to you all . . .
And of this have no fear
It's very, very possible
That I'll be worse next year.

• • •

THE PRACTICAL SIDE. Something new in college courses has turned up at the University of Georgia's pharmacy school: How to use the telephone. Instructors say practicing pharmacists complain that graduating students "know their chemistry but can't use a telephone." Students use an interoffice telephone system to take down prescriptions "telephoned in" by instructors.

• • •

THE CRIME CONFESSOR. An enterprising Canadian newspaperman made use of transatlantic telephone service to explode a hoax of international proportions, according to a recent issue of *Blue Bell*, official publication of the Bell Telephone Co. of Canada.

The newspaperman is Norman Hull, News Editor of *The Windsor Daily Star*.

On Jan. 7, Arnold Craig, a 25-year old Windsor auto worker, "confessed" to police in Pontiac, Mich., that he had murdered a French girl named Janelle Dagnais while he was with the Army overseas in 1944.

According to Craig's story, which was front-page news throughout Canada and the United States, he and a British soldier had been fighting and in the course of the fight the young woman had been hit on the head and killed.

Immediately after Craig's first story, news services checked with authorities in France and it was reported there was an unsolved murder in Lille, where the Dagnais girl lived.

Then a series of conflicting reports were received and Hull decided to get to the real truth in the matter. On Jan. 10, he placed a call to the chief of police in Lille.

Speaking through an interpreter provided by the Bell Telephone Co. of Canada, Hull established definitely that there was no such crime on the blotter at Lille headquarters.

Until he was confronted with this conversation, Craig maintained that the girl was dead. He said over and over that his conscience made him confess the crime.

However, when Editor Hull told of his conversation, Craig confessed that his story had been a hoax and the girl had merely been injured.

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IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH
WASHINGTON EDITOR

Florala (Ala.) Telephone Co. likely to get first REA loan. . . . Facts concerning application and loan discussed. . . . USITA President H. V. Bozell and NARUC General Solicitor W. R. McDonald urge repeal of telephone excise taxes before house committee.

REA's First Loan?

BY THE time these lines appear in print, the first loan to be made by the Rural Electrification Administration under the new Rural Telephone Loan Act will probably have been announced with appropriate ceremony. At that time details surrounding this first loan are also likely to become public property.

While the identity of the first authorized borrower had not been officially disclosed as these lines were written, there is reason to believe that it would go to one of four applications which are pretty far advanced. These four applications come from telephone companies in Alabama, Indiana, North Dakota, and New York.

It was suggested in this department, two weeks ago, that the honor of the first loan might appropriately go to the home state of the author of this federal legislation, Sen. Lister Hill of Alabama. For that reason your correspondent is inclined to the view that the Florala (Ala.) Telephone Co. will get the first REA loan. Of course, the matter is still subject to the approval of Administrator Wickard, at this writing, and anything can always happen at the last moment.

But assuming that the Florala loan will come through, in the first place, here are some interesting details which your correspondent has dug up about this application. They may throw some light on the actual workings of REA policy on rural telephone loans for the future.

The town of Florala has a population of 2,900, but the surrounding rural area, which the Florala Telephone Co. proposes to serve under its loan application, are all places with populations of less than 1,500. This is the maximum limitation required by law. At present the Florala Telephone Co. has a magneto system serving about 390 subscribers in the proposed service area. The amount of the loan, recommended for approval, was understood to be $205,000. But the total expenditure for plant improvements and line extensions under the proposed program is estimated to cost $227,000. This means that the difference, of some $22,000, will have to be put up by the management. If this is so, the proportion of *new* equity to the amount of the REA loan would be slightly less than 10 per cent. Of course, the existing property now owned by the Florala Telephone Co. may well be subject to an over-all obligation for repayment of the loan to REA. Strictly speaking, therefore, the ratio of "equity" to borrowing would be very much higher.

But, from the standpoint of raising *new* capital, for the total outlay of a proposed rural extension program, telephone companies will be interested to know that REA is prepared to consider loans of this kind—*where the owners of the property are slated to put up less than $1.00 for every $9.00 the government will lend to finance the new construction and improvements.*

The company plans to use the loan to replace exchange equipment, repair 50 miles of existing lines, and extend new lines for about 180 miles. Some 80 of these miles would be under a joint-use agreement (for pole lines and right of way) with an existing electric co-op.

Now, as to so-called "area coverage," the Florala application suggests another interesting sidelight on REA lending policy. It is understood that the original mileage of new line proposed to be constructed was increased after review of REA. A tentative agreement was reached between the company and REA on this extended coverage, to reach additional blocs of rural subscribers who would otherwise not have practical access to the lines under the original proposal. This would seem to bear out the comment made in this department a couple of weeks ago that REA might, in some cases, suggest that applicants for loans increase the scope or size of their original application to get better "area coverage."

Since the Florala company is already serving 390 subscribers in the proposed service area, and since it is estimated that the lines will serve approximately 1,200 subscribers after the improvements are completed, let us see how this works out in terms of "area coverage." The survey map shows that the complete maximum potential service, in this area, would be in the order of 2,100 subscribers. In other words, that would be the number of subscribers if literally all dwellings or places of business in this service area could be reached with agreements to subscribers for service.

It would appear, therefore, that the ratio of rural customers, which the Florala Telephone Co. proposes to serve, as compared with the maximum potential customers that could be served under any conditions, *amounts to about 58 per cent.*

It must be emphasized that each service area must be judged upon its own conditions. But the willingness of REA to consider a rural telephone loan proposal to serve 58 per cent of the maximum potential, in a given rural area, is certainly an interesting fact worth noting. It must be repeated that circumstances can always alter cases and local conditions can vary widely. In some circumstances, standards of "area coverage" might approach almost 100 per cent of maximum potentiality. In other cases—such as in areas of wide open or difficult terrain, cut up by rivers or canyons or other natural barriers, making a large proportion of farms inaccessible for practical line building—the "area coverage" requirement might be considerably less than 58 per cent.

The proposed revenue requirement struck this correspondent as the most interesting of all features of the Florala loan application. In data submitted to the Alabama Public Service Commission, a residential rate of $42 a year was suggested. A somewhat

higher figure was suggested for business service. The tentative residential rate thus works out at $3.50 monthly plus the present federal excise tax on monthly bills (15 per cent). This would make the total outlay by the rural subscriber slightly more than $4.00 a month.

That seems like a pretty substantial rate for rural service. But it must be remembered that the annual interest charge (2 per cent), plus the necessary annual payment required to amortize the ($205,000) loan, would—in the early years at least—require that this company get *over $10,000 in revenues in excess of operating expenses and taxes!* And this would simply be to service the loan. In later years, as the loan becomes repaid and the telephone company's equity increases, there would be more net return for the owners of the property. But it is obvious, from these tentative figures, that the typical REA borrower is going to have to get a fairly substantial rate for service just to "carry" the loan, in the early years of repayment.

As for investment per customer, the Florala loan suggests an investment requirement of about $280 for every new customer planned. This figure is obtained by deducting the number of customers already served in the area (390) from the total number of customers proposed to be served (1,200) and dividing the remainder into the total cost of new plant and improvement ($227,000). Of course, no allowance is made here for the admitted fact that the improvements would also be made in the service of existing customers already connected. If such an allowance were included, the investment per new customer would be somewhat less. But such a computation would involve a judgment figure—reflecting the pro rata allocation of investment cost to existing subscribers in the area to be served.

Congress Hears about Telephone Tax

On Feb. 15 those members of the House Ways & Means Committee who were able to be present at hearings on the proposed federal excise tax reduction, received some enlightening information about the burden of federal taxes (both excise and corporate income) on the telephone industry.

In addition to a witness for the Bell System, Harold V. Bozell, president of the General Telephone Corp., submitted a statement on behalf of the United States Independent Telephone Association. Mr. Bozell appeared in his capacity as president of the association. He referred to an earlier statement which briefly reviewed the history of special taxes on the telephone industry since it began during the Spanish-American War in 1898.

He pointed to the rapid growth of the telephone as an everyday necessity of modern American life. In 1920, there were only 125 telephones for every 1,000 population. In 1930, this number had risen to 164 per 1,000. Ten years ago it was 166. And today it is 270 per 1,000. Mr. Bozell continued:

". . . Sixty-six per cent of the (American) families have telephones and almost all of the businesses. The idea of putting an excise tax upon the use of so essential a service as a part of a peacetime tax structure seems out of reason. And the amount of the tax is extreme. There is already a tax bill in the telephone charge, to take care of the corporate taxes which are levied upon the telephone companies. In the General Telephone System, with which I am most intimately familiar, this amounts to about 50 cents per telephone per month. But in addition to this, the customer pays directly an excise tax which in our system averages over $1.00 per month per telephone, or making a combined tax load of over $1.50 per telephone per month. To put it another way, is to express the tax in terms of the $1.00 which we charge our customers for service. Total operating taxes, which the companies themselves pay, account for over 12 cents of each $1.00 of charge. For local telephone service and tolls under 24 cents, the customer pays an additional 15 cents on each $1.00 of charge, making his total payment $1.15, or making a total tax load of 27 cents for each $1.00 of telephone charge. For long distance, where the 25 per cent excise rate applies, his total tax load becomes 37 cents on each $1.00 charge for telephone service."

The witness reminded the congressmen that the telephone business is a regulated business and that the imposition of taxes makes the problem of rate regulation doubly difficult. This argument was ably confirmed by the testimony of General Solicitor Walter R. McDonald, who appeared for the National Association of Railroad & Utilities Commissioners (NARUC).

Mr. Bozell stressed the danger and the unfairness of a special excise tax on telephone use becoming a permanent part of the nation's normal peacetime tax structure. He said it was an inequity which should promptly be removed, regardless of the availability of any immediate alternative source of tax revenue. The witness stated on this point:

"It has been urged by (Treasury) Secretary Snyder that no action be taken on these taxes until some substitute source of revenue can be created. Of course this assumes that repeal of excise taxes would eliminate just that much revenue—we doubt this sincerely. If, as was the case, the whole wartime excise tax provisions were enacted as restrictive provisions, then their repeal should have the opposite effect; namely, an encouragement to production, consumption and use, and all this would make for a greater total income upon which the remaining tax levies would be made. Furthermore, in our jurisprudence we don't keep an innocent man in jail until the guilty party is apprehended and convicted. . . ."

Mr. Bozell then suggested if the congressmen could not find their way clear to eliminate *all* of the excise taxes on telephone communications, at least they ought to start in (with any such tax relief) by eliminating the tax on local telephone monthly bills, as well as on long distance calls of less than 50 cents. He pointed out that local telephone service is the only tax levied on comparable service. In the transportation field, for example, monthly commutation tickets are not taxed, any more than streetcar, bus, or taxi fares. The witness added: "Certainly local service in telephone communications falls within the same economic category as commutation tickets for transportation."

It was also suggested that there should be a top limit on excise taxes for long hauls. Calls between San Francisco and Philadelphia, for instance, now suffer an undue tax burden (because of the percentage feature of the tax) as compared with short haul tolls.

NARUC General Solicitor McDonald urged the full and prompt repeal of all excise taxes on communication and transportation services. In addition, the resolutions, telegrams and letters received from the individual state commissions relative to their position on the excise tax matter were submitted to the committee for inclusion in the record. These communications were received from the state commissions of Alabama, California, Connecticut, District of Columbia, Florida, Hawaii, Iowa, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, New Mexico, North Dakota, Ohio, South Dakota, Tennessee, Washington and Wyoming.

Judge McDonald also made a strong point about the effect of federal income taxes on telephone companies—aside from excise taxes. The NARUC did not take any position regarding President Truman's proposed increase in corporate income tax. But Judge McDonald pointed an unmistakable finger of warning at the problem which any increase in corporate income tax would present to the state commissions. He demonstrated clearly that it would become a grievous burden on the consumers of utility service.

At the present level of corporate income taxes, the state commissions are compelled to provide $1.61 (in net

(Please turn to page 37)

SUPPLEMENT TO SOURCE OF INQUIRIES FOR REA TELEPHONE LOANS—COUNTY LIST BY STATES

The following data are supplemental to the list of inquiries for rural telephone loans, by state and county, received by the Rural Electrification Administration, presented on page 15 of the Jan. 21 issue of TELEPHONY. This supplementary list is as of Feb. 10.

The new list of inquiries is compiled on the same basis as the original list in the Jan. 21 issue—(1) Inquiries from "existing systems"—meaning from telephone companies, proprietors, or other system operators now in the telephone business; (2) inquiries from "new organizations"—meaning cooperatives or others, which are not now engaged in the telephone business in the *county* areas listed. Classification 1—existing companies—are shown in bold face and Classification 2—new organizations—are shown in italics following the asterisks. However, in the following list, the *cities* from which the inquiries originated are shown in parentheses.

According to Francis X. Welch, our Washington Editor, who compiled the lists, this will be the last information presented on an inquiry basis, as the REA has now entered the application handling phase in regard to telephone loans. TELEPHONY will, hereafter, report *weekly* REA loan activities on the basis of applications approved, as released by REA.

ALABAMA

Barbour (Louisville)
Bullock (Union Springs)
Crenshaw (Brantley)
Madison (Huntsville)
Pike (Goshen)
Talladega (Lincoln)
Wilcox (Pine Apple)

* * *

Coffee (Kinston)

ARIZONA

Navajo (Holbrook)

CALIFORNIA

San Joaquin (Acampo)
Siskiyou (Dorris)
Sonoma (Healdsburg)

* * *

Kern (Oildale)

COLORADO

Mesa (De Beque)

IDAHO

Nez Perce (Lewiston)

ILLINOIS

Effingham (Elliottstown)
Grundy (Morris)
Henderson (Raritan)

INDIANA

Franklin (Laurel)
Hendricks (Clayton)
Ripley (Sunman)

* * *

Jackson (Brownstown)
Monroe (Stanford)

IOWA

Washington (West Chester)
Webster (Fort Dodge)

* * *

Mitchell (St. Ansgar)
Webster (Lehigh)
Woodbury (Lawton)

KANSAS

Brown (Robinson)
Cherokee
Ellis (Ellis)
Morton (Elkhart)
Pawnee (Larned)
Reno (Abbyville)
Smith (Lebanon)
Thomas (Colby)

* * *

Harper (Waldman)

KENTUCKY

Adair (Columbia)

* * *

Owen (Owenton)

LOUISIANA

Union

MAINE

Kennebec (Winthrop)

MICHIGAN

Benzie (Honor)
Emmet (Levering)
Kent (Caledonia)
Ottawa (Zeeland)

MINNESOTA

Clay (Ulen)
Clay (Hawley)
Chisago (Stacy)
Hubbard (Guthrie)
Lake of the Woods (Williams)
Lyon (Taunton)
Lyon (Garvin)
Pine (Hinckley)
Polk (Euclid)
Polk (Starbuck)
Stearns (Albany)

MISSISSIPPI

Calhoun (Bruce)

* * *

Pearl River (Canvieve)

MISSOURI

Barry (Exeter)
Caldwell (Breckenridge)
Carter (Van Buren)
Laclede (Conway)
Lawrence (Halltown)
Webster (Rogers Mill)

NEBRASKA

Furnas (Holbrook)
Red Willow (McCook)

* * *

Antelope (Orchard)

NEW MEXICO

Colfax (Springer)

NORTH CAROLINA

Columbus (Fair Bluff)
Polk (Tryon)

NORTH DAKOTA

Bottineau (Souris)
Divide (Ambrose)
Grand Forks (Gilbey)
La Moure (Marion)
McKenzie (Keene)
Ward (Berthold)
Stark (Dickinson)

* * *

Burleigh (Menoken)
Towner (Bisbee)

OKLAHOMA

Carter (Lone Grove)
Comanche (Sterling)
Garfield (Enid)
Harper (Buffalo)
Marshall (Madill)
Payne (Perkins)
Pottawatomie (Earlesboro)

* * *

Bryan (Calera)

OREGON

Benton (Philomath)

* * *

Deschutes (Redmond)

SOUTH CAROLINA

Allendale (Fairfax)

SOUTH DAKOTA

Codington (Kranzburg)
Douglas (Corsica)
Gregory (Dallas)
Spink (Doland)

TENNESSEE

Clay (Celina)
De Kalb (Alexandria)
Henry (Cottagegrove)
Obion (Hornbeak)
Shelby (Kerrville)
Sullivan (Bristol)

* * *

Bedford (Shelbyville)
Carroll (Cedar Grove)
Claiborne (Tazewell)

TEXAS

Bexar (Wetmore)
Coryell (Evant)
Dallas (Dallas)
Deaf Smith (Hereford)
Denton (Argyle)
Jones (Hamley)
Van Zant (Martins Mills)
Wilson (Sutherland Springs)

* * *

Ochiltree (Perryton)
Young (Olney)

WASHINGTON

Lewis (Chehalis)
Spokane (Spokane)
Thurston (Rainier)

WISCONSIN

Monroe (Norwalk)
Oconto (Oconto)

WYOMING

Albany (Laramie)

* * *

Campbell (Gillette)
Weston (Newcastle)

ABC of the Telephone

By FRANK E. LEE

THE selection of the proper sized rectifier for a given installation involves the consideration of many factors. Among these are the anticipated expansion of the exchange, the type of equipment used in the exchange, the maximum load and load duration experienced on a normal day, and the extent and the frequency of abnormally heavy loads in excess of the daily maximum.

In order to obtain the maximum life from a battery, the voltage across the battery terminals should be maintained perfectly constant and the battery kept in a fully charged condition. The exact voltage to be maintained across the battery terminals is in the neighborhood of 2.15 volts per cell but may vary somewhat from one installation to another, depending upon the normal gravity of the batteries, the type of cell, the age of the battery, the temperature of the battery room, and similar factors. (See Part 48, TELEPHONY, Sept. 3, 1949.)

Prolonged operation of the battery at more than 1 per cent in excess of its normal floating voltage generally results in gassing, together with the loss of some active material from the plates and loss of water from the cells.

Prolonged or frequently repeated operation at voltages more than 1 per cent below the normal floating voltage may lead to a gradual loss of specific gravity in one or more of the cells in the battery and possibly the sulfation of these cells. In order to assure full-floating operation of the battery, the rectifier should have sufficient capacity to carry all peak loads which last for more than a minute or two. It is sometimes acceptable to depend upon the overload capacity of the rectifier to carry these peak loads, inasmuch as the rectifier will, at normal line voltage, generally carry aproximately

PART XLVIII. Rectifiers—Section 3. The preceding article appeared in the Jan. 28 issue, p. 13.

20 to 35 per cent in excess of its rated current without an appreciable drop in output voltage. Generally, the output voltage of a rectifier will stay within a tolerance of ± 1 per cent throughout the operating range of load current and input voltage.

When the charger voltage is maintained with this degree of accuracy, variations in the load on the battery are very closely followed by the variations in charging current, so that no appreciable power is drawn from the battery, and, therefore, none need be returned under normal operating conditions. At this voltage, the batteries will automatically absorb sufficient current to counteract their internal losses and maintain the fully charged condition. The rest of the output delivered by the charger goes into the load.

Usually some type of current limiting feature is built into the rectifier. This feature tends to limit the maximum output of the charger, under maximum line voltage conditions, to approximately 180 per cent of the rated output of the charger, thereby preventing damage to the charger, or the blowing of fuses when the charger is connected to a discharged battery, as generally occurs after a power failure. Obviously, the rectifying stacks in the rectifier must be of sufficient capacity to handle these overloads safely.

Increasing Power Output of Automatic Rectifier

One of the most satisfactory means of supplying primary power is provided by an automatic rectifier unit. This fact can be highlighted by a short discussion of constant potential chargers. When used in floating service, the important and critical feature of the constant potential charger is the necessity for setting and maintaining the correct working voltage. Usually these chargers are equipped with some sort of manual charge adjustment. This adjustment is used to set the charging or trickle rate at any desired point. If the setting selected is too low the battery will not be built up to the calculated amount of charge. If the connected load should be slightly greater than normal, the battery would operate in a partially or wholly discharged condition. In a like manner, if the trickle rate is set too high, and the load should be temporarily lowered, the tendency will be for the battery to reach an overcharged condition.

Either of the foregoing two situations create conditions which tend to reduce the efficiency and service life of the battery plant. However, with the proper primary or input charge level, the battery becomes merely a buffer in the system. As a result, the battery seldom is called upon to work at its capacity; maintenance is reduced considerably, and the service life of the battery is increased indefinitely over that of a fully worked battery. The automatic or variable output rectifier is designed to provide a correct input charge as required by the connected load.

When an original installation is being engineered, a rectifier with a capacity sufficient to carry the peak connected load should be selected. However, in the normal course of events, the connected load usually increases to a point where the charging requirements exceed the capacity of the automatic rectifier unit that may be in service. An economical means of meeting this situation is through the use

of a constant potential charger in parallel with an automatic rectifier unit. All that is required for this type of installation, in addition to the constant potential charger, is a voltage control relay.

Generally the voltage control relay is designed to operate at the full load current of the automatic rectifier. Usually the release value of the control relay is at a point somewhat less than 10 per cent of the full load current. A schematic of a typical combination of automatic rectifier and constant potential rectifier is shown in *Fig. 1*. The control relay is adjusted to operate on a current equal to the rated capacity of the automatic rectifier. For this reason, as long as the relay contacts remain open, all current requirements of the connected load up to the automatic rectifier rating are supplied by the automatic rectifier.

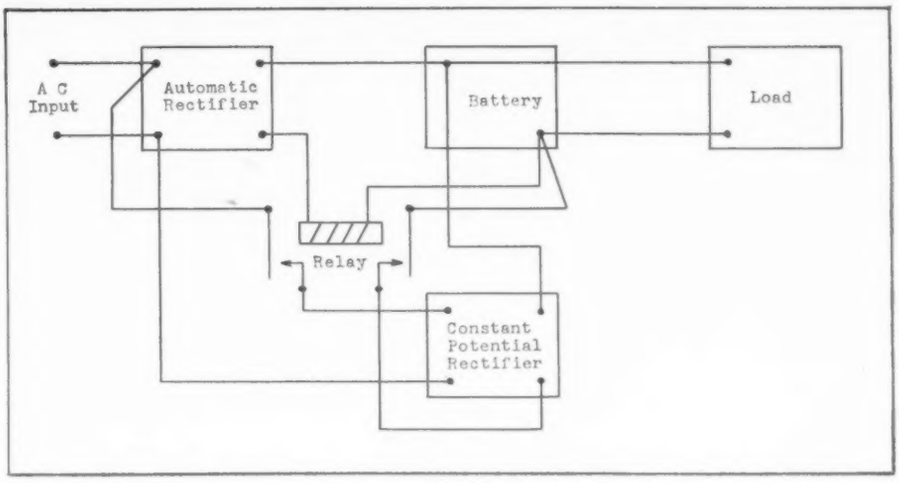


Fig. 1

If the connected load continues to increase to any point above the rating of the automatic rectifier the control relay will operate. Upon the operation of the control relay, the constant potential rectifier is energized and connected in the power circuit. In most installations, the constant potential rectifier is adjusted to deliver an output voltage equal to 90 per cent of the rating of the automatic rectifier.

When the constant potential rectifier is energized, the combined output of the automatic rectifier and the constant potential rectifier will cause a slight increase in the battery voltage. The controls of the automatic rectifier are sensitive to the increase in battery voltage, and immediately reduce the output of the automatic unit to 10 per cent of its rated maximum. As a result, the total charging rate is equal to the output of the constant potential rectifier plus 10 per cent of the automatic rectifier. At this time the automatic unit is in a position to furnish an increased output in accordance with any further increases in the demand of the connected load.

The above condition will prevail until the load demand becomes equivalent to rated output of the automatic rectifier plus the output of the constant potential rectifier. Over and above this point, any increase in the load is carried by the battery. Most installations are engineered to the point where the combination of automatic and constant potential rectifiers will carry all except the unusual peak period loads. Peak period loads, for the most part, are infrequent occurrences, and generally are of rather short duration. For this reason, there is little possibility of a severe drain on the battery when it carries any load over and above the combined output rating of the rectifiers.

When the connected load decreases, the combined output current decreases to a point somewhat below the maximum rated capacity of the automatic rectifier. At this point, the automatic unit is furnishing less than 10 per cent of the total output. Under these conditions the control relay releases and opens the input and output circuits of the constant potential rectifier. Now the charging circuit has restored to its original condition where the full load is carried by the automatic unit. With a correctly adjusted control relay, the increase in the output of the automatic rectifier will not be sufficient to re-energize the control relay. In the event that the load requirements continue to decrease, the output of the automatic unit will decrease accordingly. At no load the output of the automatic unit will be of a value as required to balance the internal battery losses.

Parallel Operation of Rectifiers

The next step towards increasing the output capacity of the rectifier installation is to connect the required number of rectifiers in parallel. Any number of automatic rectifiers can be connected in parallel. In a like manner, constant potential rectifiers will

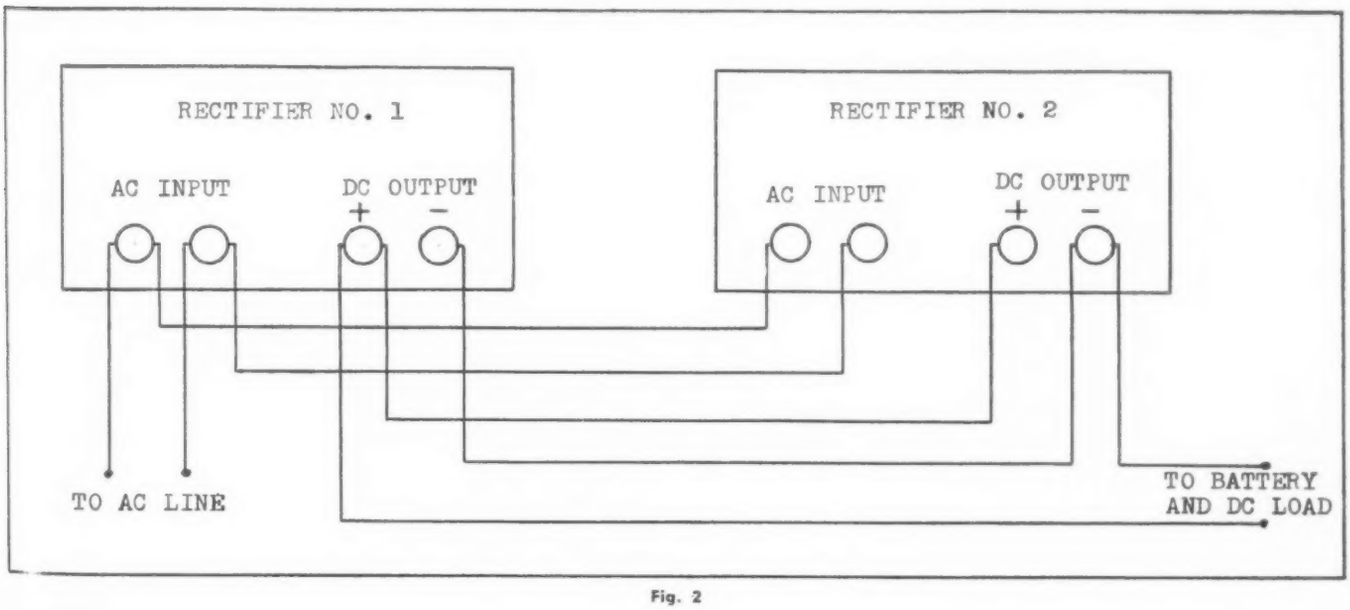


Fig. 2

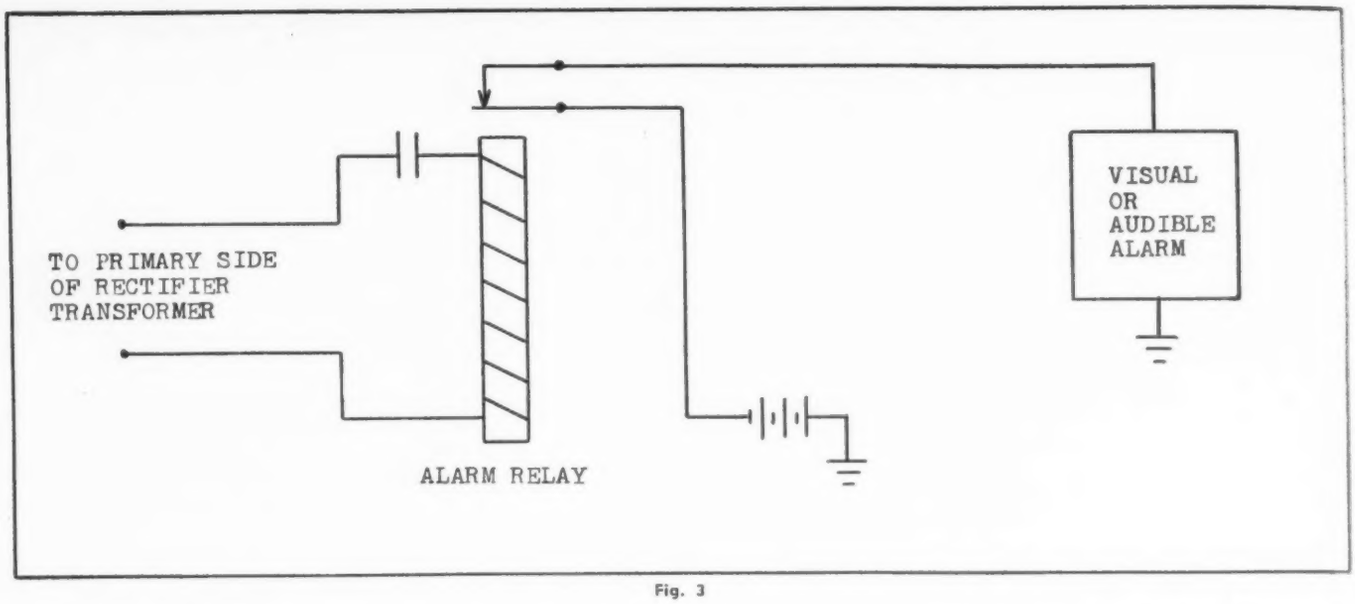


Fig. 3

operate in parallel. For this reason the use of a number of automatic rectifiers as a primary unit with a second group of constant potential rectifiers as an auxiliary power source is entirely feasible. When a number of rectifiers are connected in parallel, the objective is to divide the connected load equally between each unit.

Before connecting rectifiers in parallel, all of the units should be adjusted to deliver approximately the same output characteristics. These adjustments can be made accurately by securing a uniform output of each rectifier when connected to an identical load. A typical parallel connection diagram of two rectifier control panels is shown in *Fig. 2*. While only two control panels are shown in this illustration, the same type of parallel wiring would be used to connect a larger number of units in parallel.

Rectifier Power Alarm

Practically all rectifiers are equipped with terminals to operate a power alarm signal in the event of a power failure in the ac supply. Also, the same signal can be used to set up a fuse alarm to provide an immediate signal in case a primary rectifier fuse should operate. A schematic of a typical alarm circuit is shown in *Fig. 3*. The features of the alarm circuit are as follows:

(1) *Alarm Relay.* The alarm relay usually is a suitable ac relay operated by current supplied by a tap on the primary side of the rectifier transformer. As long as the relay winding is energized the alarm operating contacts are held open.

(2) *Alarm Battery Supply.* Usually the alarm battery supply is provided by the storage battery plant. To prevent an unnecessary drain on the storage battery reserves, the alarm can be disconnected manually at any time after the signal is set in operation.

(3) *Power Alarm.* As a general rule, in an attended central office exchange building, the power alarm should consist of a visual signal as well as a distinctive audible alarm. At PBX installations or unattended dial exchanges, the power alarm usually takes the form of a visual signal. For the PBX installation the signal can be located at the switchboard and in the event of a power failure the operator can relay the information to the central office repair center. Practically the same arrangement can be provided at the unattended dial exchange. For these installations a logical alarm arrangement is to connect the power alarm to a common major alarm located at the toll center.

Elimination of Noise

Practically every rectifier installation is a tailor-made job designed to satisfy a number of variable conditions. This fact, plus the results of normal aging of the rectifier and other components in the installation, may cause reports of noise in the talking circuits. Usually, if the trouble is caused by the rectifier or charging plant, the noise will take the form of a low pitched humming sound in the telephone receiver which is loud enough to interfere with normal conversation. Usually this kind of trouble can be traced to one of the following conditions:

(1) Loose or corroded battery terminals.

(2) One or more defective or discharged storage battery cells.

(3) If the noise is intermittent and noticeable only during the busy hours of heavy traffic, the cause of the trouble may be an overloaded rectifier. To check for this condition, connect an ammeter into one of the dc output leads and observe whether or not the noise occurs when the dc load is high. A low battery will tend to aggravate this condition.

(4) Incorrect wiring or grounding. Review the manufacturer's specifications to determine if the rectifier is connected properly into the battery plant. Noise trouble is bound to develop if both the storage battery and switchboard are connected in parallel across the dc output terminals.

(5) The storage battery may be too small for the connected load. As mentioned previously the storage battery serves as a filter cushion between the rectifier and the load. If the battery is too small, some rectifier hum may be permitted to pass on to the switchboard. A good rule to follow is to select a storage battery that has an eight hour discharge rate equal to the full load current rating of the rectifier.

(6) Rectifier too close to switchboard. While long dc output leads are to be avoided whenever possible, the rectifier should be at least six feet from the switchboard.

Maintenance of Rectifiers

On the whole, metallic rectifiers require about the least amount of maintenance of all apparatus items in the telephone plant. This is true because there are no parts to wear out on this type of charger. Usually the only adjustments to be made involve the transformer aging taps or the aging resistor, depending on the type of rectifier involved. Generally, after an initial aging period of a year the rectifier will perform satisfactorily without further attention to these aging adjustments.

The only remaining maintenance item falls in the category of good housekeeping. This is the problem of dust accumulation within the rectifier cabinet. In exceptionally dusty locations there may occasionally arise the problem of removal of dust from the ventilating grills or from the inside of the rectifier. Obviously an excessive accumulation of dust would obstruct the ventilation and adequate cooling of the rectifier elements. This condition could easily result in serious damage

(Please turn to page 37)

THE PLANT MAN'S *note book*

BY RAY BLAIN TECHNICAL EDITOR

A UNITED STATES Senator may make 50 free long-distance telephone calls and send all the free telegrams he wants during a session of Congress. A house member can use $500 worth of long distance calls and telegrams. Free stationery is provided. Mail goes postage-free.

• • •

It has been said: "Courtesy is the key to success. There's no lock too complicated for it to open."

• • •

The daily syndicated feature *"Uncle Ray's Corner,"* published in many daily newspapers, recently featured the telephone and its evolution from 1900 to date. The article stated in part:

"During the early years of this century, people used to 'ring up' their friends. They would turn a small crank at the side of the telephone to do it. Very likely other subscribers would answer as well, or at least lift up their receivers.

"It was quite common then for people on party lines to listen to the talking which went on. In that way, a good deal of news, and possibly a few secrets, came to be spread about. Even to this day, 'tis said, there are persons who listen in on party lines.

"By the time 1925 rolled around, there were neat desk telephones, each with a receiver which could be lifted from the hook. The lifting of the receiver gave a signal to central.

"By 1925, the crank was a thing of the past in most places. Some subscribers missed the little crank which could be used to 'wake up' certain operators from what seemed like a winter's sleep.

"During the second quarter of the twentieth century, a great forward step was taken in the telephone world. Dial telephones were installed in large cities, then in cities of middle size. Today dial telephones are being installed in scores of small cities. By moving the dial several times, it is possible for a subscriber to reach any of thousands of numbers—with the help of a bit of electricity and some wonderful mechanism at the central station."

And that, my children, is a brief history of 50 years of telephony. It also indicates how little the general public understands about our business.

• • •

The technique of central office equipment installation has certainly changed radically during the past several years. In the old days, we frequently wore blisters on our fingers from sewing cables to racks and equipment frames with lockstitch. This difficult task is made comparatively easy today by merely clamping the cables to the racks by the use of special metal clips, snapped in place with a minimum of effort. Moreover, on some installations, the cable racks are dispensed with entirely and the cables are merely dropped into metal troughs that connect the various equipment bays in the exchange. These metal runways are neat, protect the cable, and are easy to keep clean. Such methods have both proved entirely satisfactory over a period of years and actually present a much better appearance than did the old laboriously sewed cable runs.

In addition, also, factory impregnated switchboard cable is now rather extensively used and the necessity of using the old, cumbersome and dangerous wax heating pot is entirely eliminated. We doubt that the old-time equipment installer would ever agree that a large central office switching system could be installed without the aid of a wax pot and beeswax galore, but this is actually being done. We are advised by numerous competent equipment engineers that impregnated switchboard cable with enamel and cellulose acetate insulation is proving entirely satisfactory.

The writer visited a factory recently and noted that electrical connections on some equipment were being neatly made by the use of rosin core solder about the size of No. 19 wire. In answer to our query, it was explained that this solder permitted neater and better connections to be made in confined locations. Perhaps the same would hold true and this same sized solder could also be used to advantage in the exchange on both installation and maintenance.

It is now also common practice to bind the braid covering of switchboard cable with a neat wrap of scotch electrical tape where it is butted to prevent fraying. This method is both neater and more quickly completed than binding the butt with lockstitch or working the braid back and under itself to prevent fraying. This latter operation was performed laboriously with the aid of a special butting tool.

Since the beginning of telephony, until only a few short years ago, it was considered a "must" to form and lace all cables where they were attached to terminal strips or connecting blocks. Now, for the most part, this lacing is dispensed with and the cable is merely fanned out and connected to the terminal strips. This method is equally as good and often even more serviceable than the old cable form laced tightly and neatly at great effort and expense.

Then, also, in the old days, cable forms were carefully painted with several coats of white shellac. This was supposed to prohibit the entrance of moisture, but it also often sealed moisture inside the form which, in time, caused serious trouble and cable replacement.

It is the opinion of the writer that many of these new methods are equally good as, and often even better than, the obsolete methods and certainly in all cases they are more economical.

• • •

While in New York City recently we noted an improved directory holder used extensively for public telephones. These large directories, seven to 10 in number, were firmly clamped in special binders and hinged on the back in slots of a shelf. To use, the directory was merely turned upward on the pivot and opened. After using, a simple operation closes the directory and turns it down in the slot.

This arrangement not only preserves large directories better than any means

we have heretofore observed, but at the same time proves most convenient for the customer.

• • •

According to "Wood Preserving News," the Steeplechase Pier at Coney Island, N. Y., was completed in 1904 on 500 pressure creosoted southern pine piles. Today, 45 years later, this pier is being rebuilt using 85 per cent of the original piles, despite the severe conditions of exposure to which they have been subjected.

The 15 per cent of the original piles which were replaced included damaged piles and also those showing decay or marine borer attack.

The piles being reused were given a careful examination, and increment borings taken at points about five inches below the original 1904 points of cut-off disclosed no butt decay. These piles were originally given a pressure treatment by the full-cell process to a final retention of 14 pounds of creosote per cubic foot.

PLANT MAN'S QUIZ

Q. In planning buildings for unattended dial exchanges, what size of door should be provided for entrance of the equipment?

A. Equipment used for small exchanges generally may be passed through a standard sized door. In most cases, these doors are arranged to swing outward to save floor space. However, in cases where a door would swing over a public sidewalk, it may be necessary to swing it inward and increase the floor space accordingly.

• • •

Q. What type of wire is considered best suited for the construction of metallic circuit rural lines?

A. The choice of line wire for rural line use will depend upon many factors, such as, climatic conditions, the length of the line, type of service, etc. In general, however, the principal types of wire used may be galvanized iron, mild steel, high tensile steel, Copperweld or hard drawn copper. High strength wires, such as high tensile steel and Copperweld; are now being extensively used for rural lines as they permit the use of longer spans and result in considerable savings in pole costs. If 150-ft. spans are necessary when iron wire is used, it may be possible to use 300-ft. spans with a good high strength wire.

Regardless of the type of wire selected, it is most important that it be strung initially and maintained in accordance with the sag and tension tables recommended by the manufacturer. Proper tension is necessary in order to avoid wire breaks, swinging contacts, and to relieve the poles of abnormal longitudinal strains, allowance for which is not normally provided in the design of the line.

• • •

Q. We have several locations where new open wire lines must cross a public highway and a high voltage power transmission line at the same time. We plan to make underground dips at these points using steel tape armored, lead-covered cable. Is this considered a satisfactory practice?

A. The method you suggest is commonly used and in general proves entirely satisfactory. It is most necessary, however, that suitable protection be provided at both ends of the underground dip where the open wire connects to the cable. These protectors should be equipped with both fuses and open space cut-outs.

While steel tape armored cable is entirely satisfactory, in our opinion, plain lead covered cable protected by an approved conduit provides a much better arrangement. In this case, if a cable develops trouble in the underground dip, it may be removed and a new one installed without digging up the surface of the highway, a thing which usually proves a most inconvenient and expensive operation.

• • •

Q. How can we determine when old iron line wire on a rural line should be replaced?

A. As a rule, iron or galvanized steel wire should be replaced when it has rusted and is pitted appreciably. Breaks may be frequent on the line at this time or it may be noisy because of high resistance in splices. In most cases, rusty wire will not last more than a few years longer at best and in view of its possible detriment to service, its immediate replacement can be justified in the majority of cases.

• • •

Q. What is to be gained by connecting a copper-oxide varistor across the operator's receiver on a manual switchboard?

A. This arrangement is often used in the manner referred to as a noise and acoustic shock reducer. As you probably know, acoustic shock may be caused by any sudden application of an excessive voltage across the telephone receiver. In most cases, this is caused by an extraneous voltage impressed on the telephone line by lightning, a power contact or power line induction.

When the varistor is used as a shock reducer, it is connected directly across the receiver. When the voltage of speech transmission is applied, the varistor has a normal impedance of 2,000 ohms or more, and very little current is shunted around the receiver. Further, when a high voltage is applied to the receiver as caused by a power cross, the impedance of the varistor drops to a low value and permits the greater part of the current to be shunted through it. This leaves only the low voltages to be placed on the receiver.

• • •

Q. What is considered a safe speed at which to pull underground cable into a conduit?

A. If the conduit is in good condition, a speed of about 90 feet per minute will prove safe, under normal conditions. It is also a good plan to lubricate the lead sheath to reduce the friction between it and the conduit.

It is always necessary to maintain an alert watch so that the cable may be stopped quickly in the event of any difficulty that might cause damage.

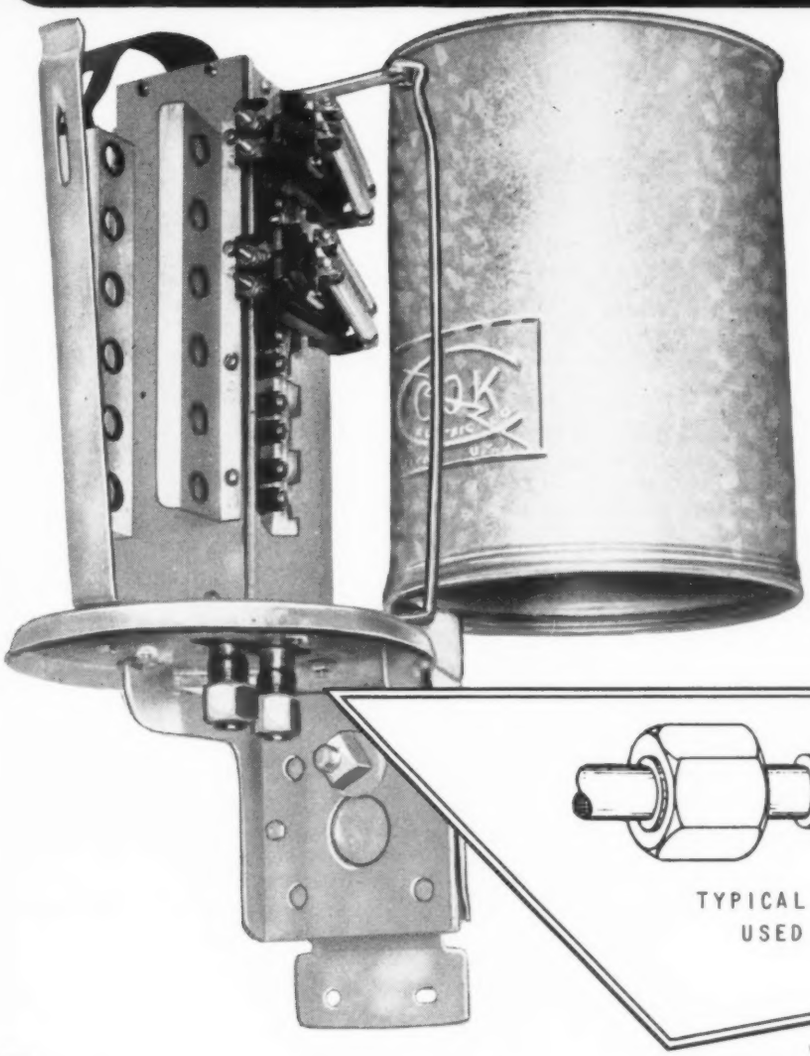
• • •

Q. We experience considerable noise on our small magneto telephone system which we have not been able to locate. Can you advise us as to the probable cause?

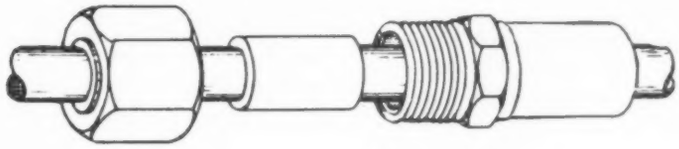
A. The causes of noise on any telephone system are numerous and can usually be traced to inferior maintenance methods. Loose connections and parallel power lines are perhaps the most common cause of noise trouble.

In the first place, all lines should be metalized. The old grounded return is obsolete in this day of cross-country power lines and its use should never be attempted. Metallic lines should all be properly transposed. This is especially necessary on power parallels. Make certain also that all connections are either soldered or made by the use of compression type sleeves. It is imperative also that all protector blocks both on the main frame and in terminals are clean and free of partial grounds. In addition, worn switchboard plugs and jacks are a frequent source of noise and cut-out trouble. Plugs should be polished with an approved polishing paste at regular intervals. Old and defective dry cells may also be a source of trouble because of voltage variation and noise.

Simplified Adaptation



The Cook S-20 Pole Cable Terminal equipped with IN-OUT COMPRESSION COUPLINGS for the NEW PLASTIC COVERED CABLE



TYPICAL COMPRESSION COUPLING USED ON COOK TERMINALS.

THE Cook S-20 protected cable terminal now is supplied with compression couplings as an optional feature. This provides an ideal terminating point for the new plastic covered cable. The terminal is provided with two couplings and the cable can be looped through the terminal without requiring a stub splice, thereby simplifying the line construction and providing a moisture-proof, light-proof chamber for the Cable Conductors.

The H-20-7 protector mounts supplied with the S-20 terminals are especially designed for discharging heavy power cross surges and are ideal for joint pole occupancy.

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When you buy Strowger Automatic equipment, you buy *peace of mind!* You know you'll get dependable service from your equipment, because today's Strowger equipment is backed by a record of more than fifty years of dependable service—plus this "hidden feature" that protects your investment.

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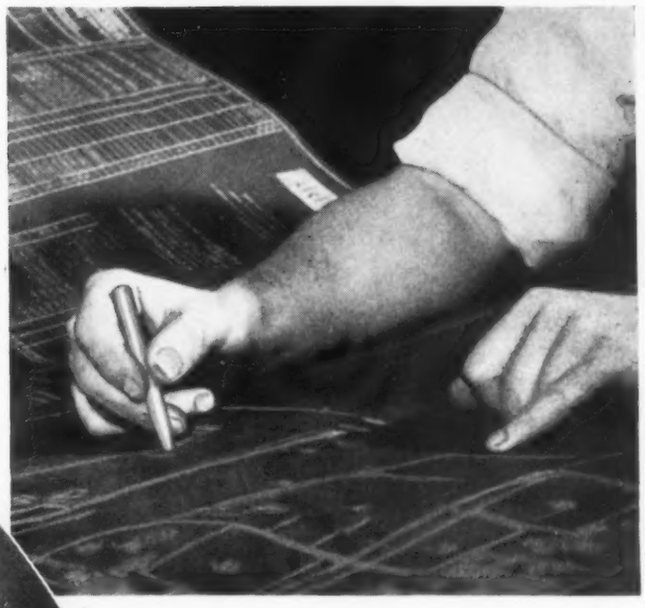
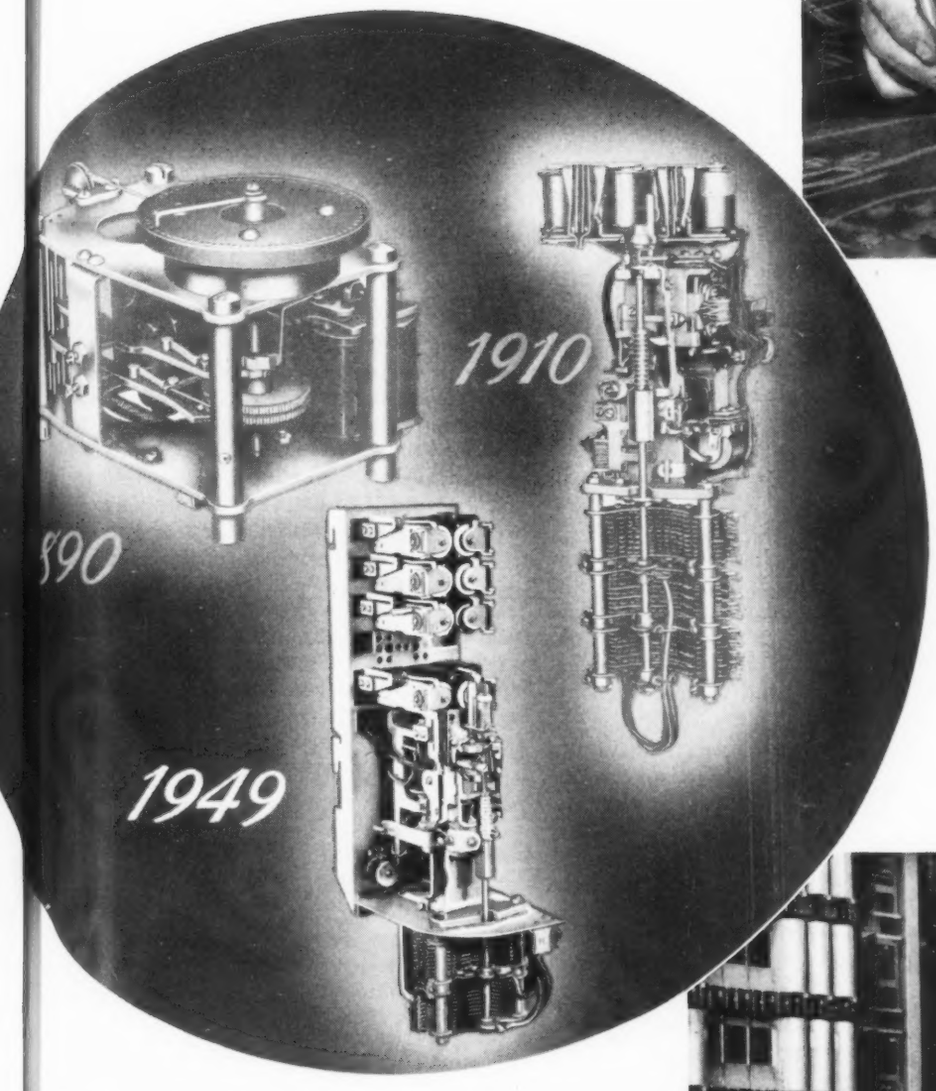
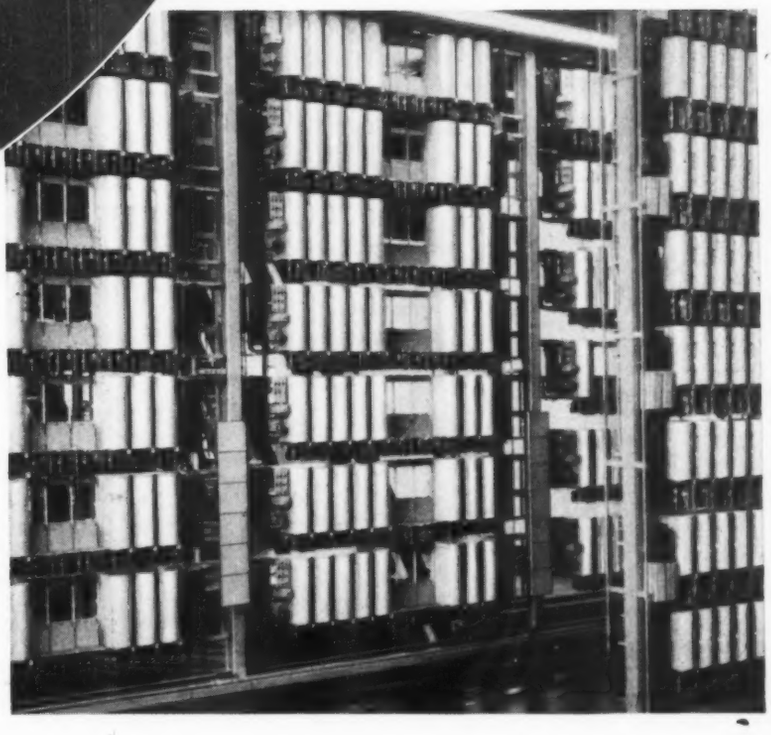


Every Strowger Automatic installation benefits from Automatic Electric's unequalled "know-how."



...omatic Electric "know-how" is re-...ted throughout the design and pro-...tion of Strowger Automatic equipment.



Today's Strowger Automatic equipment has developed from 50 years of successful performance, *in the field.*

POSTWAR DEVELOPMENTS IN *German Telephone System*

By EUGENE H. MERRILL
Chief, Communications Branch
Office of the U. S. High Commissioner for Germany

CUSTOMER dialing and the use of radio circuits have been expanded in providing long distance telephone service in postwar Germany. This is in addition to major accomplishments in the reconstruction and rehabilitation of a telephone system that was severely damaged and non-operative at the beginning of occupation.

Experimentation in the radio-telephone field conducted prior to the war was carried on during hostilities by the German army. It placed some radio-telephone circuits in operation in Germany and extended the system to some of the countries it overran.

The U. S. Signal Corps utilized the facilities available at the end of the war and expanded the usage of radio-telephone circuits in the areas which it occupied in Germany. These facilities were transferred in 1947 to the German communications agency which, under the control of U. S. Military Government, continued its maintenance and expansion.

Objectives to be achieved by the use of long distance radio-telephone circuits were the provision of:

(1) Alternate facilities along important routes to prevent a complete interruption of service in the event of outages of landlines.

(2) Facilities supplemental to overloaded landlines with minimum expenditures of materials and money.

(3) Expeditious provision of circuits to areas where insufficient landlines existed.

Generally, the radio-telephone circuits are established on a line-of-sight basis. That is, relay stations are located to insure an unobstructed direct line of contact along the various routes. The distance between relay stations varies with the topography, but averages about 40 miles.

Most of the equipment now used on the various routes is of older types and has not been standardized. The power of the transmitter is approximately one watt operating in the 500-600 megacycle frequency band using directional antennae.

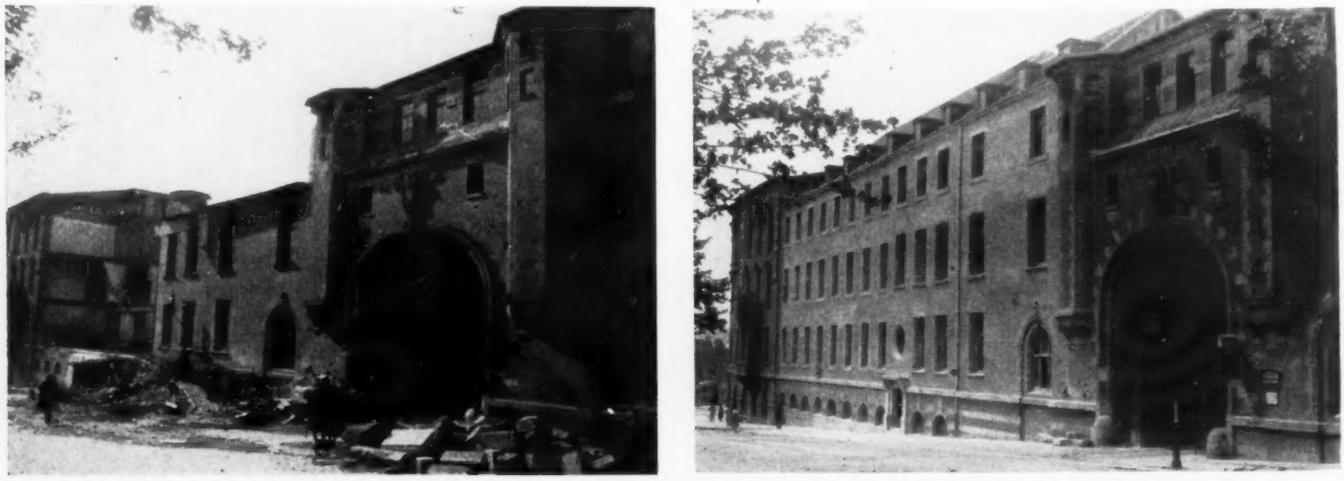
Presently available carrier equipment provides up to 15 telephone circuits on one system and 18 telegraph circuits superimposed on a telephone circuit.

More powerful transmitter equipment now under manufacture will operate in the 2000-3000 megacycle frequency band. A maximum of 60 telephone circuits will be provided by one system.

There are now long distance radio-telephone circuits in commercial operation, supplementing the existing landline facilities, between a number of larger cities in the Federal German Republic and between Berlin and Western Germany.

The Soviet blockade of Berlin, beginning in the spring of 1948, speeded up the development and installation of transmitter, receiver, carrier and antennae equipment to provide radio-telephone and radio-telegraph circuits between Berlin and the Western Zones. New techniques were developed which resulted in the provision of fairly reliable circuits between Berlin and the nearest suitable location in Western Germany—a distance of 110 miles—without intermediate relay stations. Transmitters of one KW are used on these systems utilizing frequencies between 30-50 megacycles.

German radio-telephone engineers variously estimate the cost of providing long distance telephone circuits by radio at one-third to one-fifth the cost of circuits in cable over comparable distances. The radio-telephone circuits are considered to be nearly as good as those provided over landline facilities. The speed and flexibility in providing



LEFT PHOTO: Telephone, telegraph and postal building in Kassel, Germany in 1945 and (right) as it appears today after reconstruction.

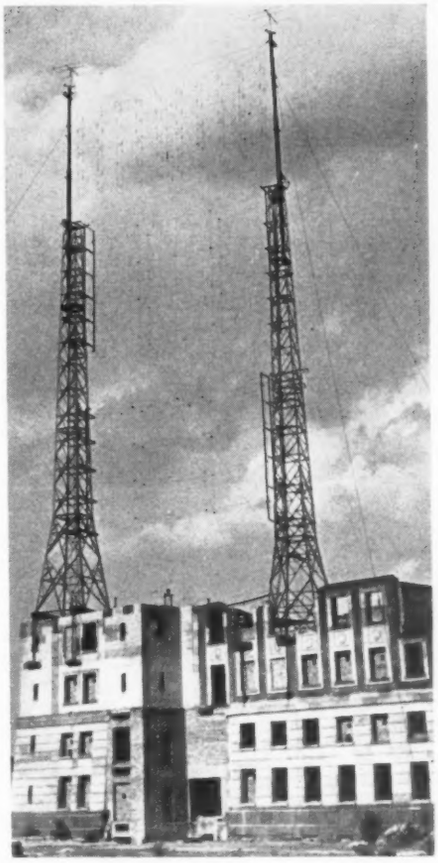
long distance telephone circuits by radio was recently demonstrated. Emergency requirements for additional telephone circuits between Bonn (new capital of the Federal German Republic) and Frankfurt—a distance of 80 miles — were provided by radio in 10 days.

Long distance customer dialing is now operating between some German cities up to distances of 100 miles. There is operator dialing between other cities over much greater distances. As money and equipment become available in the next several years, it is intended to implement plans, now in the blue-print stage, to place all of Germany's long distance telephone service on a customer dialing and automatic billing recording basis. The system provides for the use of a maximum of 10 numbers—four to reach the city desired and the other six for the telephone in that city. The plans also provide for the extension of the automatic system into an international European network.

Prior to the destruction of facilities during the war, nearly 95 per cent of Germany's main line telephones were served by dial exchanges. Only limited dial equipment manufacturing capacity remained in Western Germany at the beginning of the occupation. Further, it was necessary for the Western German communications agency to finance its operations, rehabilitation, and plant additions entirely out of current revenues. This resulted in the installation of manual offices in some cities where all the dial equipment was destroyed, and manual additions to dial offices in others where there was only partial destruction. The installation of manual exchanges, including equipment for the automatic recording of calls, costs about 60 per cent as much as the installation of dial equipment of the same capacity.

A fairly simplified schedule of rates is in effect. Long distance telephone calls are billed on a time and mileage basis (three-minute period) with person to person costing one-third more than station-to-station calls. Local telephone rates are uniform throughout Western Germany. The monthly charge ranges from 4.5 marks ($1.07 at official rate of exchange) in towns having 50 main line stations to 9.0 marks ($2.15) in cities having over 10,000 stations. In addition, 0.15 marks ($0.03½) is charged for each local call.

Shortage of equipment for meeting large backed up demands for local telephone service has given impetus to the installation of public paystations. This program has been impeded by insufficient metal coins, which has been partially overcome by the sale of special metal discs for use in the paystations.



Western Berlin receiving antennae for radio-telephone and radio-telegraph channels between Berlin and the Federal German Republic.

Most long distance calls are handled on a "booked" and not a "no delay" basis. A rather complicated priority system is in use. It contains several categories of calls, based on two principles:

(1) Importance of the call.
(2) Amount paid.

"Urgent" calls are given priority over normal calls in the same category but at twice the normal rate. "Blitz" calls—10 times the normal rate—are given top priority. In addition, preference is given to international over internal calls.

To facilitate Germany's economic recovery, first priority was given to the rehabilitation of the telegraph and long distance telephone plant. Nearly twice the number of long distance telephone calls are now completed in the Federal German Republic compared with 1937. The standard internal telegraph system is now handling, on a normal grade of service basis, nearly two and one-half times the number of telegrams compared with 1937. Further, an automatic customer operated telegraph system (telex) is now in operation serving over 1,700 subscribers in the Federal German Republic and Berlin. It is tied in with automatic systems in various other Western European countries.

To provide more services to the German people and increase revenues, the Deutsche Post has emphasized various programs, including establishment of:

(1) Public paystations in specially constructed booths on the streets in many towns.

(2) Small public offices in railroad stations and other locations for rendering telephone, telegraph, postal and financial services.

(3) Public offices in Allied clubs, hotels, office buildings, and similar locations for providing telephone, telegraph and postal services to the Allied Forces (over $250,000 monthly are collected from Allied personnel in the United States area of control for the rendering of non-official communications services).

(4) Telephone numbers that subscribers can call to obtain time of day, weather reports, three-minute latest news broadcasts, list of current motion pictures being shown at local theaters, musical tones for musicians, and taking messages for subscribers who do not answer their telephones when initially called.

Words cannot adequately describe the destroyed condition of Germany's communications system at the beginning of occupation and the rehabilitation that has since taken place—it has been truly phenomenal.

V V

January Fire Loss 1.5 Per Cent More Than January, 1949

Fires destroyed an estimated $58,823,000 in American property during January, an increase of 1.5 per cent over losses for the same month a year ago, it was announced recently by the National Board of Fire Underwriters. The January total was 12.6 per cent below the loss estimate of $67,279,000 for December, 1949.

For the year ending Jan. 31, 1950, losses are estimated at $668,433,000. This represents a decline of $37,597,000, or 5.3 per cent, from the $706,030,000 fire loss total for the year ending Jan. 31, 1949.

"While this property damage is staggering," a Fire Underwriters official said, "it is far more alarming to note the number of Americans who are burned to death in fires every day. We must reduce the annual sacrifice of 10,000 lives in fires, most of which could be prevented.

"Many fires are caused by simple acts of carelessness, such as discarding cigarettes without first making sure they are out. Nearly a third of all our fires are traced to that one cause—carelessness with cigarettes and matches. We can save lives, jobs, and property by taking a little extra care."

Courts and Commissions

Ordered to Maintain Books, Make Monthly, Yearly Reports

The Nebraska Railway Commission has ordered the Dixon Telephone Co. to set up and maintain a set of books under the uniform system of accounting and to make monthly and yearly reports. The company's rates, adopted and put into effect two years ago without authority of the commission, were recently validated (TELEPHONY, Feb. 18, p. 29).

The company was formerly a mutual operating under the name of the Farmers & Merchants Telephone Co., but was sold to a group headed by Wayne S. Lund, now its manager. The lines are all grounded and it operates magneto service. Subscribers number 98.

The order of validation permits a monthly increase from $1.40 to $1.60 for party shareholders; from $1.60 to $2.00 for party non-shareholders; from $1.80 to $2.40 for private stockholder lines and from $2.40 to $3.00 for private non-stockholders.

V V

Florida Commission Proposes Bookie Service Rules

The Florida Railroad & Public Utilities Commission has scheduled a public hearing for Mar. 10 to consider an adoption of rules governing the installation and removal of telephone service in connection with bookmaking.

The proposed rule concerning the installation of telephone service provides that any telephone or telegraph company operating in Florida under the jurisdiction of the commission, before accepting any application for or installing any telephone or telegraph facility, shall obtain from the applicant a statement of the purposes for which such facility will be used and whether or not the applicant has ever been arrested for bookmaking.

It also provides that the utility involved shall refuse to install the facility applied for if it appears from the statement of the applicant that such facility will be used in violation of any Florida or federal laws or any rule or regulation of the commission or, under certain conditions, that the applicant has been arrested for bookmaking.

Another proposed rule provides that telephone and telegraph companies shall disconnect and remove all telephone and telegraph facilities and discontinue service over the facilities whenever any such company has knowledge, or is notified by any state or federal law enforcement officer, or by the commission, that the facilities have been or will be used in violation of any Florida or federal laws or any rule or regulation of the commission.

It also provides that under certain conditions the arrest for bookmaking of anyone employed at the location where such facilities are installed and in service shall constitute prima facie evidence upon which the party invoking such rule may act.

V V

Commission Answers Criticism On N. C. Telephone Program

Members of the North Carolina Utilities Commission indicated Feb. 15 that they are growing tired of Gov. W. Kerr Scott's barbs in connection with his efforts to get telephone companies to expand into rural areas, and stated that each time he raps the telephone companies their fund-raising problems are increased.

Until now the commission members have taken the governor's criticism silently, but they replied when he said of them in Raleigh, "I am still not certain they are going to get along, and I want you folks to help me build a fire under them and see if we can get any action before the next legislature. If we don't we may have to reorganize again."

Commission Chairman Stanley Winborne said, "Every man on this commission is behind Gov. Scott's program to extend telephone service to every section of North Carolina and we're doing everything we can to accomplish the completion of the program as rapidly as possible. There are 71 telephone companies in the state, and with the exception of a few known by the commission, they are making every effort to carry out this program.

"The great difficulty is lack of money and many of them are borrowing as much as they can and their stockholders will permit to provide funds for further expansion," he continued.

"It is quite a different thing from building highways with state funds to building telephone lines with stockholders' money.

"The difficulty of getting the stockholders to provide funds for the telephone companies has increased in direct proportion to the rising denunciation of the telephone companies. No person wants to invest in a company that's about to be run out of business.

"The few telephone companies which have not responded to the demands of this commission for expansion have been, and will be, cited by the commission in show cause orders.

"The commission and its technical forces are making careful investigations of all companies, and it now is receiving individual company reports on the number of telephones installed in the state. The totals are considerable."

Edward McMahan, commission member appointed by Gov. Scott in his "reorganization" of the body, agreed with Mr. Winborne.

"As a matter of fact," Mr. McMahan said, "it's been my opinion that the program is moving as rapidly as it can be expected to move. We're making strides far surpassing other states. And we're not only doing this but are carrying a large volume of work."

Mr. Winborne recently proposed a state loan fund for telephone companies, and Mr. McMahan agreed that "it would be a good investment. The state would get both telephones and interest on its money."

"It took $200,000,000 to build the roads," Mr. McMahan said, referring to the governor's rural roads program, "and you still hear complaints. Give us $50,000,000 and we'll cover the state with telephones."

• • •

A state loan fund for telephone companies may be the solution to North Carolina's rural telephone problem, ac-

cording to Chairman Stanley Winborne of the North Carolina Utilities Commission, who says the more the commission studies telephone service in the state the more it is convinced that money is the most important factor.

Although he says the proposal is still "just an idea" and that it is so new that he hasn't decided fully how such a fund would be administered, he says he is convinced that some sort of financial aid will have to be provided, regardless of the complications.

Many small companies, the commission chairman pointed out, cannot expand because in many cases they cannot get the money needed for such a program.

A state telephone loan fund, he says, could be designed along the lines of the new federal loan program established under the Rural Electrification Administration. Interest rates, he pointed out, could be high enough to pay costs of the program and to assure the state of a reasonable return, yet be low enough to allow small companies to borrow.

Governor W. Kerr Scott recently asked the commission to look into complaints that telephone companies have not been extending their facilities adequately, particularly into rural areas.

• • •

The North State Telephone Co., High Point, N. C., appeared before the commission Feb. 14 voluntarily, and explained that it has installed more telephones during the past two years than during the previous 35 years of its existence. It discussed the possibility of issuing additional stock, the proceeds of which it hopes to use in further expansion.

Despite the large number of telephones installed in the past two years, the company's subscribers in High Point, Thomasville and Randleman have complained to the governor and to the commission. Manager Robbins Tilden and other company officials explained the action being taken to appease the complainants.

V V

Indiana Group Seeks Rate Increases

A group of 14 Independent telephone companies, with headquarters in Attica and Greenfield, Ind., have applied to the Indiana Public Service Commission for permission to increase their rates. The companies, with the percentage rate increases sought, are:

Cayuga Telephone Corp., Attica, 39 per cent; Brownsburg Telephone Corp., Greenfield, 12 per cent; Citizens Mutual Telephone Co., Attica, 32 per cent; Citizens Telephone Co., Attica, 29 per

Here the Hydrocrane quickly eases a pole into place. Telescoping boom is a big help when operating around overhanging wires and in close quarters.

THIS H-3 Hydrocrane, owned by John W. Daniel & Co., Danville, Va., set poles in the city of Danville for 1/10 of what it cost with a line truck equipped with an A-frame and winch. The Hydrocrane set about 40 poles per day, compared with 4 to 8 poles with the line truck—and handled the job much more safely. These poles are 60 feet long and weigh approximately 3000 pounds each.

Users also report that the Hydrocrane is extremely valuable for moving poles on and off trailers, hauling trailers, general clean-up around the company yards. Also available with clamshell bucket, grapple, trash or snow bucket. Every crane function fully hydraulic. Two sizes 1/4 yard 2-ton and 3/8 yard 3-ton. Send the coupon for full information.

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SOUTH MILWAUKEE, WISCONSIN

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Gentlemen: I want the full story on the Hydrocrane.

BUCYRUS ERIE HYDROCRANE

Name.....
Company.....
Address.....
City.....
State.....

cent; Coal Creek Telephone Corp., Attica, 29 per cent; Darlington Telephone Co., Attica, 27 per cent; Fountain Telephone Corp., Attica, 16 per cent; Indiana Western Telephone Corp., Attica, 28 per cent; Ladoga Telephone Co., Attica, 23 per cent; Union Telephone Co., Greenfield, 16 per cent; Wabash Prairie Telephone Corp., Attica, 17 per cent; Wabash Valley Utilities Corp., Attica, 42 per cent; Oxford Telephone Co., Attica, 22 per cent; and State Line Telephone Corp., Attica, 22 per cent.

V V

Recommends Increased Rates For Two Independents

Paul R. Reed was recently appointed director of public utilities of the Oklahoma Corporation Commission. He also retains the duties of commission auditor and rate analyst which he has filled for several years.

In recent actions Mr. Reed recommended increased rates for the Southwestern States Telephone Co., Brownwood, Tex., at its 56 Oklahoma exchanges, and also for the Stilwell Telephone Co.

Proposed rates for the Southwestern company are estimated to yield an over-all return of 5.04 per cent, an estimated annual increase in revenues of $153,000.

This would offset an operating loss of $24,741 and leave $128,259 before income taxes. Deducting $37,500 in income taxes from the latter sum will leave $90,759 as a return on the rate base of $1,801,490.71.

Recommended rates for the Stilwell company are:

Classification of Service	*Monthly Rate*
One-party, business, handset	$4.15
One-party, business, wall or desk	4.00
Two-party, business, handset	4.00
Two-party, business, wall or desk	3.75
Business extension, handset	1.50
Business joint-user	2.00
One-party, residence, handset	2.65
One-party, residence, wall or desk	2.50
Two-party, residence, handset	2.50
Two-party, residence, wall or desk	2.25
Rural common battery, handset	2.50
Rural, magneto (metallic)	2.00
Rural switched service	.75

V V

Overrules Court in Bookie Service Restoration

The Missouri Supreme Court on Feb. 13 ruled that Circuit Judge James F. Nangle lacked jurisdiction when he ordered restoration of telephone service to the Pioneer News Service, racing news distributor service, last April (TELEPHONY, Oct. 1, p. 25).

The court's ruling made absolute the preliminary writ granted on application of Attorney General J. E. Taylor, who contended that sole jurisdiction involving telephone service was in the hands of the Missouri Public Service Commission, and not the circuit court. In arguments before the supreme court last month, the attorney general pointed out that Pioneer made no effort to obtain restoration of its telephone service through the commission.

Removal action was expected to be delayed until the 15-day period for filing an appeal from the court's ruling has expired. The supreme court mandate will not be issued until the appeal period expires, and no action in removing 19 telephone lines from Pioneer's offices is contemplated by the telephone company before the appeal expiration date, a spokesman of Southwestern Bell Telephone Co. stated.

V V

Two Small New York Companies Sold

The Chenango & Unadilla Telephone Corp., Norwich, N. Y., has permission to buy two smaller telephone companies in central and south central New York.

The New York Public Service Commission authorized purchase of the Chenango Valley Telephone Co., Chenango Bridge, and the Otselic Telephone Corp., Inc., Georgetown.

The commission said the smaller firms could not finance improvements needed.

V V

Virginia Has Bill for Formation of Co-ops

A bill providing for the formation of non-profit telephone cooperatives on Feb. 9 passed the Virginia Senate and was sent to the House.

It was amended prior to passage to prevent formation under its terms of joint telephone and electric cooperatives.

V V

Two Wisconsin Companies Receive Rate Increases

Rate increases were granted by the Wisconsin Public Service Commission on Feb. 15 for two rural telephone companies.

The Farmers' Independent Telephone Co., Grantsburg, and the Inter-County Telephone Co., Durand, were allowed increases in annual revenue of $4,992 and $660, respectively.

V V

Seeks $11,130 Increase

The North-Eastern Pennsylvania Telephone Co., Forest City, has petitioned the Pennsylvania Public Utility Commission for authority to increase its

STROMB

there's very little else to be said!

Kennecott Telephone Cable literall criss-crosses the country—and an inch of it, found in a busy metropoli or an open field, will test to th same high quality! Years of ex perience—rigid standards of manu facture—critical testing before ship ment—these explain the continuing popularity of this brand.

Kennecott Telephone Cable is distributed by Stromberg Carlson through five conveniently located branch offices in Rochester, Atlanta, Kansas City, Chicago and San Francisco.

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STROMBERG Telephone CARLSON

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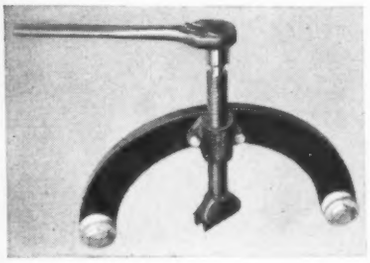
BERG-CARLSON recommends...

ratchet handle slack puller

made by Cable Spinning Equipment Co.



The same dependable Slack Puller, but with a ratchet added. This type of handle enables the operator to pull slack with the Little Giant Slack Puller, requiring even less effort than would be needed with the conventional model.

The correct tool for those who use the Puller day after day.

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. . . are designed to meet the most rigid anchoring and guying specifications.

The patented EVERSTICK Nut Housing locks anchor firmly on rod, making installation simple under all conditions and permitting easy recovery of the rod. Note well-designed, heavily constructed sections of metal in base plate.

EVERSTICK Expanding Plates are *ribbed* to double their original strength; their cutting edge and wedge shape arm socket reduces earth resistance to a minimum and assures easy expansion.

Three-Way EVERSTICK with expanding plates—contacts solid earth at every point around base plate, giving full benefit of earth's holding power.

Spreader Arms extra heavy ribbed with ball and socket joint at top and clinched socket on expanding plates allow heavy bearings to move freely with minimum friction, insuring easy expansion which eliminates buckling or breaking of arms.

EVERSTICK Anchor

. . . the anchor of merit

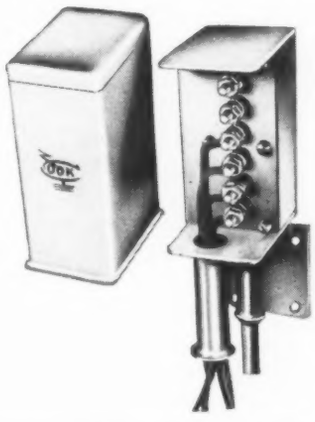
for shorter drops . . . less bracket lines

cook 3-pair XB terminal

An addition to the well-known XB family of unprotected terminals, this development provides far better, more economical means of subscriber distribution out of rural cable.

The 3-pair XB Terminal was especially designed to reduce to a minimum all factors that would cause high resistance and the possibility of line leakage and maintenance. Hence the heavy, close-fitting welded zinc cover; the non-corrosive Monel faceplate on which are mounted the highly insulated cable studs; the use of the flanged tube as an entrance for drop wires. This tube can be completely sealed after the drop wires are installed.

The new Cook Terminal measures 7½" high, 3¼" deep and 2½" wide. It is furnished with or without cable stub, to user's specification.



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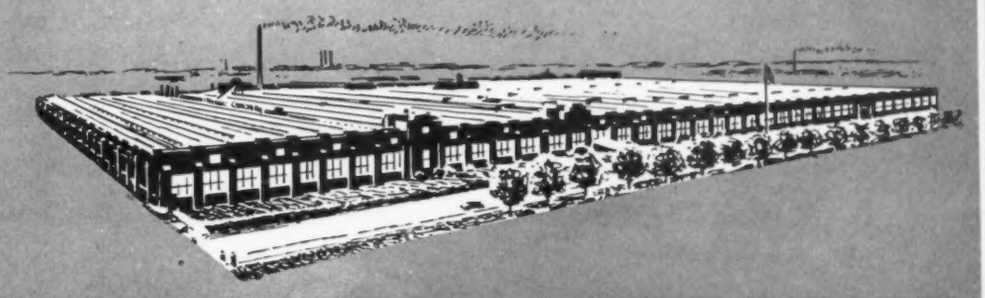
Branch Offices: Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto



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rates by $11,130 annually, effective Apr. 1, to cover additional expenses resulting from application of the federal 75-cent minimum wage rate.

V V

Granted Rate Increases

Rate increases were granted to three Independents by the Georgia Public Service Commission on Feb. 6. Net annual incomes for the companies will be: Statesboro Telephone Co., $8,323; Walker County Telephone Co., La Fayette, $4,562; Commerce Telephone Co., $10,566.39.

Alabama Commission Approves Petitions of Four Companies

Authorization to construct an unattended dial exchange at New Hope, to operate a telephone system in Ardmore, to borrow $10,000 for the financing of dial service in Moundville, and to increase common stock capitalization, was recently granted to the New Hope Telephone Co., Ardmore Telephone Co., Moundville Telephone Co., and the Southland Telephone Co., respectively, by the Alabama Public Service Commission.

Necessary operation of the New Hope Telephone Co.'s unattended dial exchange will be handled by agreement with Southern Bell Telephone & Telegraph Co. from that company's Huntsville exchange. Rates approved for the exchange, effective with the beginning of such service, are:

	Business	*Residence*
Urban one-party	$4.50	$3.00
Urban two-party	4.00	2.50
Urban four-party	3.50*	2.25
Rural line multi-party	3.00	2.25
Extension station	1.00	1.00

*Four-party business available only outside base rate area.

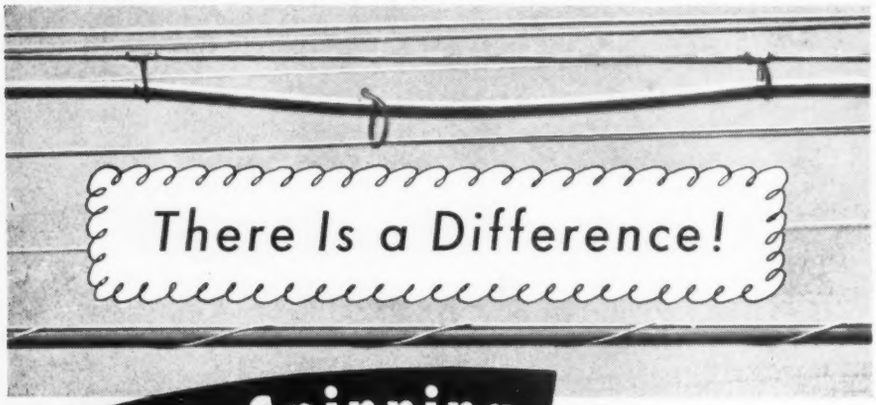
Rates approved for the Ardmore Telephone Co. are:

Urban Service	*Approved Rates*
Business:	
One-party	$5.00
Two-party	4.50
Residence:	
One-party	3.00
Four-party	2.50
Rural Line Service	
Company owned line	3.00
Subscriber owned line	2.50

The loan authorized for the Moundville company amounts to $10,000, $7,000 of which is to be borrowed from the Reconstruction Finance Corporation at 4 per cent interest and $3,000 from a local bank at 6 per cent interest, both loans to be for a period of eight and one-third years and to be secured by mortgage on the company's property. The funds are to be used in financing installation of a new dial service in and about Moundville. Rates approved for such service are:

Urban Service	*Approved Rates*
Business:	
One-party	$4.00
Two-party	3.25
Extension	1.00
Residence:	
One-party	3.00
Two-party	2.50
Four-party	2.00
Extension	1.00
Rural eight-party	
Business	2.50
Residence	2.00

Common stock capitalization of the Southland Telephone Co., Atmore, will be increased from $59,142.69 to $60,000 by transferring $857.31 from surplus account and by selling an additional $10,000 of common stock to W. F. Corman at $100 per share, the proceeds from such sale to be used in repaying Mr. Corman for $9,700 advanced to the company for corporate purposes and in adding $300 to the latter's working cash capital.



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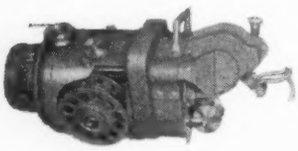
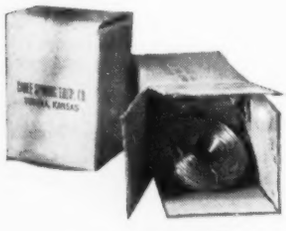
That's why more and more telephone companies everywhere are specifying spun cable for new construction and line maintenance.



Cut Maintenance time, speed new lines—equip your crews with Neale Model D Cable Spinner.

You, too, will find cable spinning lengthens plant life . . . lowers maintenance costs . . . cuts line outages.

Cable spinning is fast, economical, practical when your crews are equipped with Cable Spinning Equipment Company tools designed especially for the job. There's a complete line to choose from.



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TOPEKA, KANSAS Phone 3-1829

Court Dismisses Indictment Against Western Union

A criminal indictment against the Western Union Telegraph Co. was dismissed by the New York Supreme Court on Feb. 17. A Steuben County grand jury on Sept. 30 charged the company with "the crime of failing and neglecting to furnish information of the use of telegraphic messages in gambling as required by the provisions of Section 552 of the New York State penal law."

Justice John C. Wheeler dismissed the indictment with the comment that partial minutes of testimony heard by the grand jury were "clearly not enough to show guilty knowledge on the part of Western Union."

V V

D. E. Sutton Appointed To Illinois Commission

Dale E. Sutton, Pekin attorney, has been appointed a member of the Illinois Commerce Commission by Gov. Adlai Stevenson.

Mr. Sutton, a Democrat, succeeds E A. Rosenstone, a Republican, of Cambridge, whose resignation, submitted some time ago, has been accepted by the governor.

Recent legislation placed the commission on a bi-partisan basis, with no more than three members of the same political party. Mr. Sutton's appointment brings the commission to three Democrats and two Republicans.

Mr. Sutton will take his new post Mar. 1. He is now serving as assistant attorney general. A Pekin attorney since 1941, he is a graduate of the University of Illinois and the John Marshall Law School in Chicago.

V V

Signs Cooperatives' Bill

Gov. Herman Talmadge of Georgia signed on Feb. 16 a bill authorizing the formation of cooperatives to extend telephone service to rural communities (TELEPHONY, Feb. 18, p. 29).

V V

Granted $131,000 Increase

The DeKalb-Ogle Telephone Co., Sycamore, Ill., has been granted a $131,000 rate increase by the Illinois Commerce Commission. The increase is about $15,000 less than the company had requested. The new rates became effective on Feb. 15.

V V

Files Rate Application

The Craig Telephone Co. has applied to the Nebraska Railway Commission for permission to increase rates $1.00

Sleeping Peacefully

...thanks to Creosote!

THE fellow in the picture who is knocking off those solid hours of well-earned sleep is a telephone lineman. His company (lucky for him) uses poles that are pressure-*creosoted* against decay . . . that *stay* sound and serviceable. So there's small chance that pole failures will force him out into the night—when repair work is most difficult and dangerous.

Decay is the greatest threat to the strength and serviceability of wood, and creosote has established an enviable record in preventing it. Case histories show that pressure-creosoted poles—in line for over 30 years—are still capable of giving good service for some time to come.

For the best possible creosote delivery service, get in touch with Koppers—the nation's largest distributor. Koppers has 14 creosote-producing plants and 4 large storage plants. Your creosote requirements can be met promptly.

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All Standard Specifications
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a month on all classes of service. The company serves upwards of 500 subscribers, mostly rural.

V V

Summary of Commission Rulings and Hearings

Illinois Commerce Commission

Feb. 20: Hearing on application of Mississippi Valley Telephone Co., Carthage, for authority to increase rates.

Feb. 21: Hearings on applications of Illinois Consolidated Telephone Co., Mattoon, and Mason City (Ill.) Telephone & Telegraph Co., for authority to increase rates.

Feb. 21: Commission investigation of Illinois Commercial Telephone Co., Springfield, regarding expenses in November.

Feb. 23: Hearing on application of Easton (Ill.) Farmers Mutual Telephone Switchboard Co. for authority to increase rates.

Feb. 23: Hearing on complaint of City of Oblong *et al* against Illinois Consolidated Telephone Co., Mattoon, regarding alleged inadequate service.

Feb. 23: Hearing an complaint of Village of Riverdale against Illinois Bell Telephone Co. regarding charges between Riverdale and Chicago.

Feb. 24: Hearing on application of Southeast Missouri Telephone Co., Cape Girardeau, Mo., for authority to increase rates at its Olive Branch, Tamms and Thebes, Ill., exchanges.

Kansas Corporation Commission

Feb. 21: Hearing on joint application of I. E. Hoke to sell and John O. Gurss, Jr., and Mary R. Gurss to buy the LaHarpe (Kan.) Telephone Co.

Mar. 7: Hearing on application of Farmers Cooperative Telephone Co., Halls Summit, for authority to change rates.

Mar. 7: Hearing on application of Admire (Kan.) Telephone Co. for authority to change rates.

Mar. 10: Hearings on applications of Jetmore (Kan.) Telephone Co. and Greeley County Telephone Co., Tribune, for authority to change rates.

Mar. 13: Hearing on application of Crawford Telephone & Telegraph Co., Girard, for authority to change rates.

Minnesota Railroad & Warehouse Commission

Feb. 28: Hearing on application of Central Telephone Co., Sioux Falls, for authority to change rates.

New York Public Service Commission

Feb. 21: Hearing on petition of New York Telephone Co. for authority to increase rates.

Feb. 21: Hearing on petition of Newport (N. Y.) Telephone Co., Inc. to issue $75,000 principal amount of first mortgage bonds.

Feb. 24: Hearing on petition of Trumansburg (N. Y.) Home Telephone Co. for approval of increase in its capitalization and reclassification of its shares, and to issue preferred and common stock.

Oklahoma Corporation Commission

Mar. 15: Hearing on application of several companies for establishment of a rule similar to expired regulation U-16 governing new service installations.

Mar. 17: Hearing on application of W. O. Cooper, Jr., for improved service from Grainola Telephone Co.

Mar. 30: Continued hearing on application of subscribers in several towns for continuation of free interexchange service.

Pennsylvania Public Utility Commission

Feb. 20 and 21: Hearings on complaints of George W. Schroeck *et al*; Pennsylvania Public Utility Commission; Cities of Erie, Johnstown, Franklin, Corry, and Boroughs of Somerset, Berlin, Windber, and Meyersdale against Pennsylvania Telephone Corp., Erie, regarding alleged unfairness of proposed rate increases.

Wisconsin Public Service Commission

Feb. 20: Hearing on application of Commonwealth Telephone Co., Madison, for an additional rate increase.

Feb. 21 and 23: Commission investigation of Commonwealth Telephone Co.'s service.

Feb. 23: Hearing on complaint of John T. Boyle *et al* against Midwest States Telephone Co., Inc.

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ABC of the Telephone

(Concluded from page 22)

to the rectifier, thus the problem should be given prompt attention.

When any dust removing operations are in progress, caution should be exercised to avoid any damage to the rectifying elements. A vacuum cleaner probably will remove most of the dust. If equipment cleaning operations are being performed with an air gun inside an exhaust tent, a stream of air should remove practically all of the dust accumulated on the rectifying discs. In this case the air line pressure should not exceed 70 pounds, and the gun should be held a minimum of 12 ins. from the discs.

The entire section of a selenium rectifier disc serves as a rectifying area. In the event the use of a brush or cloth is required, care should be exercised to avoid bending or scratching the discs because this may result in impaired rectifying efficiency. A brush used for this purpose should have soft bristles and should be used with care.

As a word of caution, for the sake of safety both the ac and the dc power circuits should be opened before working inside the rectifier.

(To Be Continued)

In the Nation's Capital

(Concluded from page 18)

revenue before federal income taxes) in order to enable the utility to net $1.00 after such federal taxes. If federal corporate income taxes are increased to 42 per cent, the state commissions would be compelled to provide $1.72 in order to enable the utility to realize $1.00. These figures make no allowance for state corporate levies which exist in 33 states and which average approximately 4½ per cent; nor do the figures reflect the excise taxes which the consumers bear after the effect of corporate income taxes is reflected in the rates.

General Solicitor McDonald also pointed out to the congressmen the further problem which presents itself in public utility regulation by the extent to which these taxes are being capitalized in the rate base of the utilities. The able presentation of Justus F. Craemer, past-president of NARUC, in his address at the 1949 Cleveland convention of the NARUC relative to this problem, was submitted to the house committee by Mr. Bozell.

AT&T Answers Union on Dial Unemployment Charge

Leaders of the Communications Workers of America are throwing up a smokescreen to mislead the public and their own members when they charge vast unemployment will result from further mechanization of the telephone system, the American Telephone & Telegraph Co. asserted on Feb. 17.

"These union leaders are telling the public and the telephone men and women they were expected to lead out on strike Feb. 24 that 100,000 Bell System operators will be out of a job within three years," a spokesman for the company said. "This doesn't make sense when the facts are examined."

"The best way to judge what will happen as improvements are made is to look at what has happened in the last 10 years," he said. "In 1939 about 55 per cent of the Bell System telephones were dial operated, and 93,000 operators were employed. Today, with 73 per cent of the telephones dial operated, the system employs about 185,000 operators.

"In other words, during 10 years, the proportion of dial telephones has

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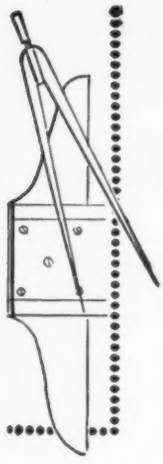

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increased from 55 per cent to 73 per cent, and the number of operators has doubled.

"At the same time, the system has gone forward with improvement of service. Today about 25,000 toll circuits are equipped so that operators can dial straight through to distant telephones in more than 600 cities and towns across the nation. But the number of switchboard operating employes in the Long Lines Department has increased from 3,500 to more than 9,000 during the 10 years.

"The fact is that technological improvements are being made because they make possible faster, more accurate service at lower cost than would otherwise be possible. This has, over the years, meant more telephone jobs, not less, both for men and women all over the country.

"Because of these improvements, telephone usage has increased and the work required to handle the additional volume of calls has grown too. In the separate communities operators, for the most part, keep their jobs or are offered equally good jobs. When dial is being considered to replace manual operation, every effort is made to minimize the effect on the employes immediately involved.

"During 1948, for example, conversions to dial operation were made in 121 cities, but less than 2 per cent of the 66,000 operators in these cities were laid off. The great majority of these had been hired for temporary jobs pending the conversion."

In her book, "People at Work," Frances Perkins, former U. S. Secretary of Labor, describes the cutover from manual to dial operation as "an almost perfect example of technological change made with a minimum of disaster. This is accomplished," she points out, "through human as well as technical planning." She found "no serious dislocation when labor-saving equipment of the telephone company was installed."

V V

F. R. McBerty Dies

As this issue went to press, it was learned that Frank R. McBerty, Galion, Ohio, chairman of the board of the North Electric Mfg. Co., and pioneer communications engineer and inventor, died Feb. 18. Further details will be published in next week's issue.

V V

Buys Capital Stock of Company

A majority of the capital stock of the Redwood County Telephone Co., Redwood Falls, Minn., has been purchased by Joseph Beran from G. M. Davis, Blanche Griebler and Hazel Nelson.

Federal Files Reply to Automatic in Patent Suit

Federal Telephone & Radio Corp., manufacturing subsidiary of International Telephone & Telegraph Corp., announced Feb. 9 that in its suit against Automatic Electric Co., Chicago, Ill., it has filed its reply to Automatic Electric's counter-claim in the U. S. District Court of Delaware (TELEPHONY, Jan. 14, p. 41).

In the three and one-half year old suit filed in 1946 by Federal Telephone & Radio Corp. against Automatic Electric Co. for declaratory judgment of Automatic's patents, Federal recently received Automatic's reply and counter-claims alleging infringement of 85 patents to which Federal replied Jan. 30. Federal not only contends that its automatic telephone equipment is free of Automatic's patents, but also challenges the validity of the patents listed in Automatic's counter-claims.

According to the Federal company, the case had its origin in paid advertisements of Automatic Electric in the spring of 1946 to the effect that it had 1,600 patents on its step-by-step systems, and advised prospective buyers "for their own protection, in fully investigating, as occasion warrants, the patent situation relating to any apparatus or equipment offered for sale to them."

Federal immediately instituted suit in the U. S. District Court of Delaware for declaratory judgment that Federal was free to continue its business notwithstanding the 1,600 Automatic Electric patents. Federal states that its automatic telephone systems, both the rotary and step-by-step types, are of its own design and are based upon some 70 years of experience throughout the world by it and its associated and predecessor companies.

Automatic Electric moved to dismiss the complaint on the grounds that the court lacked jurisdiction to pass on its patents and contended that there was no controversy between the parties. This motion was granted by the district court, but, on appeal by Federal, the decision was reversed by the Circuit Court of Appeals in Philadelphia.

On petition for review by Automatic Electric, the U. S. Supreme Court refused to review the decision of the court of appeals. The case was then remanded to the district court where it is now pending.

Automatic Electric on Jan. 11 filed its answer containing a counter-claim alleging infringement of 85 patents to which Federal has filed its reply alleging non-infringement of any of Automatic's patents and challenging the validity of the patents listed in Automatic's counter-claim.

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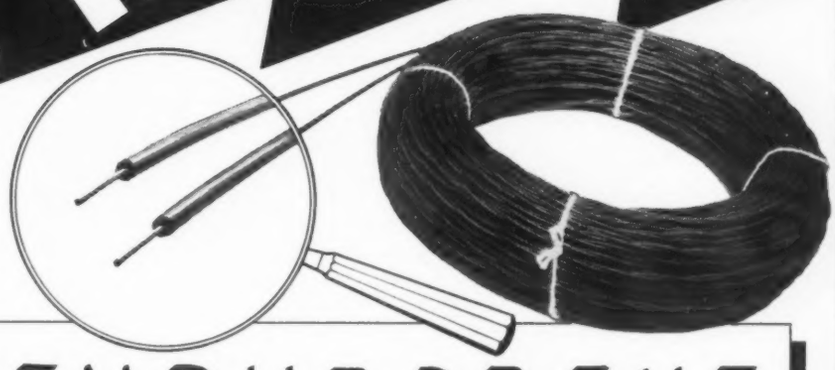

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REA Rural Telephone Loan News

Action is under way in three parts of Kentucky to set up rural telephone service through loans from the Rural Electrification Administration, it is reported.

A rural telephone cooperative will be organized in the near future to serve Graves, Calloway, Marshall, and parts of Carlisle and Hickman counties.

The South Central Kentucky Telephone Co-operative has been formed to serve Metcalfe, Barren, and Hart Counties and it is preparing to ask the REA for a loan of $800,000 to $900,000 to establish a telephone system.

Committees representing the co-op will begin in a few days a survey to determine the extent of telephone service needed. J. B. Galloway, manager of the Farmers Electric Co-op, Glasgow, said 1,800 replies had been received when the organization sent out its first questionnaire.

A five-man committee representing citizens of Morgan, Wolfe, and Breathitt Counties has been designated to organize a telephone co-op in that area. Fred Rose, manager of the Licking Valley Electric Co-op, has offered the assistance of his office in solving technical problems facing the telephone co-op.

Organization of a telephone co-op was begun at a recent meeting of the Owen County Farm Bureau at Owenton.

At Bowling Green, 13 small telephone companies have pooled their assets and started a telephone co-op. One of the companies has promised the new organization its new $1,100 switchboard as a contribution to the pool.

• • •

At a recent meeting in Paris, Te... representatives from Red River, Lamar and Delta Counties organized the Tri-County Rural Telephone Cooperative, electing the following as members of the board of directors:

Louis Bonham, Bryarly; Roy Parson, Sumner; Blake Bonham, Paris; Merrill J. Stewart, Sumner; Lem Guest, Fulbright; Grover Bickering, Lake Creek; M. E. Boaz, Brookston.

From this board of directors the following officers were elected: Chairman, Louis Bonham; vice president, Blake Bonham; secretary-treasurer, Mr. Stewart.

• • •

A new North Carolina telephone cooperative, the Oak Ridge-Stokesdale-Summerfield Telephone Membership

Corp., was recently organized to serve rural areas surrounding those towns. It is understood that the corporation will seek a telephone loan from the Rural Electrification Administration.

The company estimates it will begin operations with a minimum of 500 customers, Clyde Shreve, attorney for the group, said recently.

He said the co-operative would, if it gets its REA loan, expand to take in the largest possible number of rural subscribers and that the estimated maximum was 1,000.

V V

Incorporated in Nebraska

The Towers Telephone Co., Bridgeport, Neb., has been incorporated in that state with a capital of $3,600, by Kenneth Laing, Charles Tolle, Ray Stamen, Glen Franklin, Albert F. Dutton and Dan Morton.

V V

Seeks to Buy Missouri Company

F. O. Stoops and Joe J. Beard filed a joint application with the Missouri Public Service Commission Feb. 8 for the former to sell and the latter to buy the Summersville Telephone Co.

V V

Lazy?—Or Ingenious?

A Portland, Ore., man has worked out a way to sit on the porch and mow the lawn. He has developed a radio-controlled lawn mower. He can stop the mower on a dime, make all kinds of turns, and trim around trees with the greatest of ease.

V V

OBITUARIES

JOHN A. HARTIGAN, Kansas City, Kan., secretary and treasurer of the Western Light & Telephone Co., died Feb. 14 in Chicago following a heart attack.

V V

» Many centuries before the telephone and modern microphones, people of the ancient world tried for great voice reach.

Pictures of horns appear on the stone slabs of the time of Sennacherib and later Assyrian kings. Whether these were musical instruments or speaking trumpets is not known. But it is pretty definitely established that Alexander the Great later achieved notable results in communication by enlarging the speaking trumpet to a giant megaphone. It could send the human voice 12 miles, according to one writer. How well it could be heard at that distance is not clearly stated, however.

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Automatic Toll Ticketing Installed on Coast

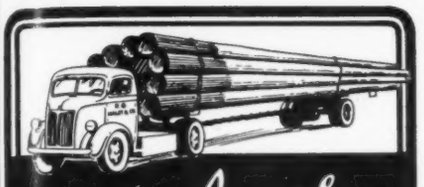
At 9 p.m. on Jan. 25, the first commercial installation of Strowger automatic toll ticketing equipment in the United States was placed in service by the Sunland-Tujunga Telephone Co. at Los Angeles, Calif. The equipment serves 5,000 subscribers through 2,940 lines of Strowger automatic equipment and permits direct dialing from the Sunland exchange into 30 other exchanges in the Los Angeles metropolitan area, giving a direct dialing access to one and one-quarter million telephones in Los Angeles and its suburbs.

The Sunland installation is the first to offer complete subscriber dialing on toll traffic to party line as well as to individual line subscribers. The dialing and toll recording features are made available to four-party line users on the same basis as higher grades of service and calls are completed without the necessity for prefixing any special codes, all traffic being handled to final completion without an operator when the subscriber dials the listed directory numbers for 83 office areas in the Los Angeles region.

A unique feature of the Sunland installation is its complete mechanization of accounting procedures. Direct dialing access to points 40 miles distant from the Sunland exchange (seven rate zones) is provided; calls are recorded automatically on teletype tapes in perforated code characters showing all billing information including distance and conversation time. Decoding of the tape record is accomplished by International Business Machines Corp. equipment. Tabulating cards are used to print the final subscribers' bills and no intermediate printed toll tickets are employed in the process.

The Sunland-Tujunga Telephone Co. is managed and engineered by J. T. Naylor, whose collaboration over the past four and one-half years with

Among those attending cut-over of automatic toll ticketing equipment in Sunland, Calif., were: BACK ROW, left to right: E. L. SWARTZ, Chicago, Ill., and M. L. MARKEY, Los Angeles. FRONT ROW, left to right: J. E. OSTLINE, Chicago, and DR. EGIDIO MENESCHI, Milan, Italy.



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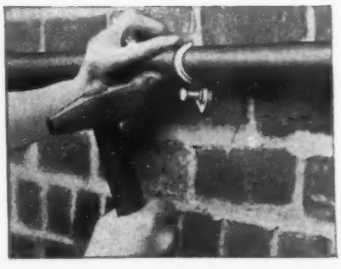

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GARWOOD, NEW JERSEY

Automatic Electric Co., Chicago, Ill., and designer John E. Ostline, equipment development engineer, Automatic Electric Co., has resulted in the adaptation of toll ticketing equipment to the commercial and service needs of the Sunland exchange and ultimately to metropolitan exchanges throughout the country.

Present on the occasion of initiating the new service were Dr. Egidio Meneschi, director general, Autelco Mediterranea, Milan, Italy; Mr. Ostline, E. L. Swartz and M. L. Markey of Automatic Electric Co.

During the final stages of equipment installation the Sunland automatic toll ticketing and automatic billing procedures have drawn worldwide interest. Included among recent visitors to the exchange have been Dr. Tullio Tarschiani, director general, Telefono Terrenea, Rome, Italy; D. Galassi, president, Autelco Mediterranea, Milan, Italy; L. S. Chapman, secretary, Mutual Telephone Co., Honolulu, T. H.; John J. Parsons, International Telephone & Telegraph Corp., New York City; and Messrs. Ricardo A. Nouche, Hector A. Borsotti and Odilo A. Garcia, all of Telefono Del Estado of Argentina.

V V

Chicago AFCA Chapter Holds Meeting

The January meeting of the Chicago Chapter of the Armed Forces Communications Association was held at the Automatic Electric Co.

Oliver Read, president of the chapter, presided and Charles S. Cadwell, president of Automatic Electric, welcomed the group and introduced the speakers at the dinner meeting.

C. F. Ffolliott, director of Automatic Electric's products design section, described "Automatic Toll Ticketing," tracing the development of the dial telephone system with the A. B. Strowger step-by-step relay. Latest development described was a completely operator-less installation in Sunland, a suburb of Los Angeles, where a punched card system will give the final automatic touch with complete tickets to be billed to customers for their long distance calls.

Keith A. Regel, manager of industrial sales for Automatic Electric, gave an illustrated talk on "Adventures in Remote Control," showing wide applications of telephone type relays in such other fields as telegraph and radio operation, totalisator boards at race tracks, airplane propellor synchronization, and airport landing strip illumination.

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courtesy of the U. S. Navy completed the program. Entitled "To the Shores of Iwo Jima," it showed the approach, bombardment, landing of Marines, and difficult fighting of one of the bitterest engagements of the last war.

V V

FWD Announces New Light-Duty Truck

A light-duty, four-wheel-drive truck developed by the Four Wheel Drive Auto Co., Clintonville, Wis., is now being introduced to a major segment of the truck field.

The new FWD, identified as Model LD, has a gross vehicle weight of 14,500 pounds. Up to now, 17,000 pounds gross vehicle weight has marked the beginning of the FWD range, which extends up to 58,000 pounds.

FWD spokesmen indicated that a light-duty model had been requested for truck service requiring the added traction of four-wheel-drive design. This field has previously been served only by conventional rear-drive trucks, some of which have been converted into four-wheel-drives by independent firms.

New FWD Model LD Truck.

According to The Four Wheel Drive firm, conversions have not been a complete answer for this field. FWD pointed out that proper distribution of load and power are necessary to secure economically widened operations with four-wheel-drive, and this is fully gained only with a vehicle engineered at the outset as a four-wheel-drive truck.

While the new Model LD will have its place in off-the-highway service, it also is said to have high efficiency on the road. Initial applications are scheduled for highway maintenance, municipal service, oil-field operations, general construction, telephone and electric line construction and maintenance, industrial shuttle service and certain types of public transportation.

The Four Wheel Drive Auto Co., now in its 40th year, pioneered development of the four-wheel-drive. It manufactures four and six-wheel-drives, and also specializes in fire trucks.

V V

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Ray Blain, TELEPHONY's technical editor, wrote in his Plant Man's note book, TELEPHONY May 21 issue: "The maintenance of accurate service records of individual drop wire installations in the average exchange proves a most difficult task.

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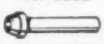

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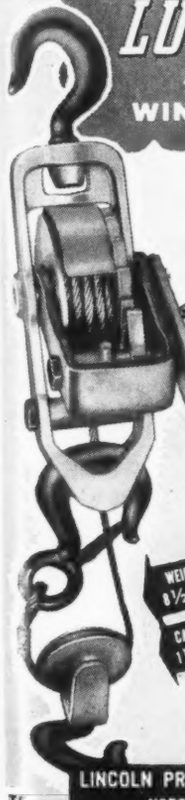

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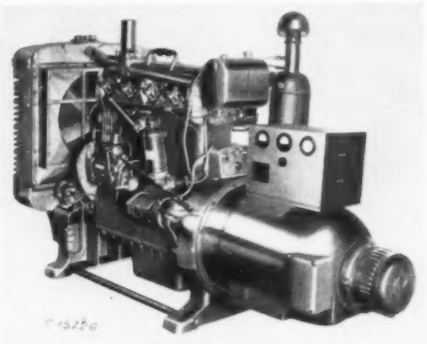
Onan Company Expands Diesel Line

Five new models of Diesel-driven electric generating plants, equipped with automatic voltage regulators and ranging from 12½ to 55 kw have been added to the line of Diesel generating equipment manufactured by D. W. Onan & Sons Inc., Minneapolis, Minn.



Powered by International Harvester low-speed engines, these new units combine the advantages of all-weather gasoline engine starting with the dependability and economy of full Diesel operation, the company states. Easily started, the engine is cranked by a 12-volt starting system similar to any conventional gasoline engine. Less than a minute of warm-up is required before changing over to full Diesel operation, which is accomplished by means of a control lever.

A battery-recharging generator is provided to maintain starting batteries at full charge.

These units are equipped with Onan voltage-regulated-type generators. Permanently aligned, they are designed and constructed to make them suitable for operation under all climatic conditions.

Generators may be paralleled. Full information on equipment necessary for parallel operation is available upon request.

Basic models are furnished with necessary engine and generator controls, automatic voltage regulator and running time meter. Standard equipment includes exhaust muffler, battery cables and terminal box.

Optional equipment includes: Voltmeter, ammeter, circuit-breaker; paralleling equipment, high water temperature and low oil pressure alarm or cut-off, steel skid base, battery rack, batteries, exhaust snubbers and fuel tanks, and fuel lines with fittings.

For further information write the Onan company and specify Form A-192.

V V

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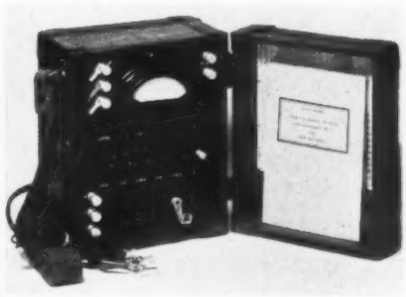

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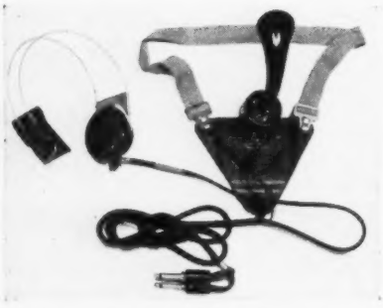

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